

# MARINE RECORD

ESTABLISHED 1878.

VOL. XXIII, No. 15.

CLEVELAND---APRIL 12, 1900---CHICAGO.

\$2.00 Per Year. 5c. Single Copy

## LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interests of Lake Carriers, and improve the character of the service rendered to the public.

### PRESIDENT.

W. C. FARRINGTON, Buffalo.

### 1ST VICE-PRESIDENT

CAPT. J. G. KEITH, Chicago.

### SECRETARY.

CHARLES H. KEEP, Buffalo.

### TREASURER.

GEORGE P. MCKAY, Cleveland.

### COUNSEL.

HARVEY D. GOULDER, Cleveland.

### EXECUTIVE AND FINANCE COMMITTEE.

JAMES CORRIGAN, Chairman, Cleveland.

### COMMITTEE ON LEGISLATION.

GIBSON L. DOUGLAS, Chairman, Buffalo.

### COMMITTEE ON AIDS TO NAVIGATION.

GEORGE P. MCKAY, Chairman, Cleveland.

## POWER CANAL AT SAULT STE. MARIE.—MEETING OF THE LEGISLATIVE COMMITTEE OF THE LAKE CARRIERS' ASSOCIATION.—AN INTERNATIONAL COMMISSION ADVOCATED.

BUFFALO, N. Y., April 10, 1900.

An important meeting of the Legislative Committee of the Lake Carriers' Association was held in Buffalo this morning.

Among those present were Messrs. W. C. Farrington, E. T. Evans, J. J. H. Brown, M. M. Drake and Edward Smith, of Buffalo, A. W. Colton of Toledo, James Corrigan of Cleveland, H. D. Goulder of Cleveland, and C. H. Keep of Buffalo.

Mr. Goulder made a careful report of all that had been done in Washington by the committee which had gone there to look after the proposed legislation relating to the power canal at Sault Ste. Marie. He submitted a draft of a bill which is now in the hands of the Chairman of the River and Harbor Committee. He stated that the position of the Lake Carriers' Association had not been one of opposition to the Power Company. They had, however, insisted from start to finish that any bill giving to the Power Company a right to operate their canal, should contain the most stringent provisions for the protection of navigation. He thought that the bill which he had submitted contained provisions so stringent that the interests of navigation would not be jeopardized provided one or two changes which had occurred to the committee after leaving Washington, were inserted.

The Washington committee, in reporting this bill to the Legislative Committee with their recommendations that it be not opposed, desired it distinctly understood that the Lake Carriers' Association had not requested from Congress the passage of this or any other bill. They were satisfied with the conditions as they now exist. If, however, the Power Canal Company desires legislation, then such legislation should protect navigation, and the bill in question did, in their opinion, protect navigation adequately.

The Washington committee had stated to the River and Harbor Committee in assenting to this bill, that they did not undertake to say what the policy of the United States Government towards the Power Canal Company should be. They had not undertaken to protect either the property rights of the United States or any other rights which it might possess. They had not endeavored to pass upon the question whether the policy of the Government should be to make a grant of this kind to the Power Company, or to pass a mere regulating statute, regulating the operation of the canal, but not granting to the Power Company a right to

divert water from the river into their canal. Such questions as these were not for the Lake Carriers' Association to settle, but for the authorized representatives of the Government to deal with. The only points on which the Lake Carriers' Association could properly touch at all were those which affected the shipping. Another question which the Lake Carriers' Association had not attempted to deal with was the policy of proceeding at all with legislation in this matter until after an international commission with full authority to deal with such questions on both sides of the river should be appointed. The question whether there should be special legislation in this case and an international commission afterwards, or whether the international commission should be appointed first, thus making special legislation for this particular canal project unnecessary, was one for Congress and not the Lake Carriers' Association to deal with.

The Legislative Committee then took up the proposed bill, as presented by Mr. Goulder, paragraph by paragraph. The first paragraph of the bill was amended by inserting a provision that before water was diverted from the St. Mary's river into the power canal, the consent of Canada thereto should be obtained. One other change in the phraseology was also made, and the full text of the bill, with these changes, incorporated, is as follows:

### AN ACT

AUTHORIZING THE CONSTRUCTION AND OPERATION OF A WATER POWER CANAL AT SAULT STE. MARIE, MICHIGAN.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, that the consent of Congress is hereby granted to the Michigan-Lake Superior Power Company of Sault Ste. Marie, Michigan, its successors and assigns, the consent of Canada being first obtained, to divert water from the St. Mary's River into the water power canal now being constructed at Sault Ste. Marie, Michigan, said company being granted the further right to construct and maintain in and about said canal suitable works, and to do whatever is necessary incidental to the operation of said canal for water power purposes, upon, however, the express precedent conditions hereinafter mentioned:

Section 1. That coincident with the diverting from the River St. Mary into such canal of any of the waters of said river, such company shall provide or cause to be provided and shall thereafter maintain suitable and sufficient remedial and controlling works in the rapids of the River St. Mary of such a character that such canal and the said controlling and remedial works, and the operation thereof, either in themselves or in conjunction with any other canal or canals and works in the United States or Canada, which now or hereafter may exist, shall not injuriously affect navigation in and shall not impair or diminish the water level or depth of water in and of Lake Superior, or the channels, natural and artificial, which are now or may hereafter be established or created for navigation purposes, or any natural increase thereof either in Lake Superior or in any connecting waterways, including the ship canal and locks at Sault Ste. Marie, Michigan, and the St. Mary's river.

Section 2. Provided further, that there shall be appointed by the Secretary of War, as soon as practicable, a board of five engineers, three of whom shall be officers of the Corps or Engineers of the United States Army, and two of whom shall be disinterested, experienced hydraulic engineers from civil life; to whom shall be submitted for their consideration and report the plans of and proposed methods of operating such remedial and controlling works and the plans and methods of operation of any other portion of the works of said company which may affect the navigation or the currents or the water levels of the navigable waters hereinbefore mentioned or of the United States works in connection

therewith. Such board may, upon the application of any person interested and upon due notice to the Michigan-Lake Superior Power Co., give a public hearing at such time and place as it may designate. The report of such board shall be made to the Secretary of War as soon as practicable and within a reasonable time after the submission of such plans and other data. Such remedial and controlling works shall not be constructed, nor shall such canal be operated until such plans and methods of operation shall have been approved by said board, or a majority thereof, and shall have received the approval of the Secretary of War and the Chief of Engineers, with such minor modifications, if any, as said Secretary and Chief of Engineers may deem necessary.

Section 3. Provided further, that whenever in the judgment of the Secretary of War the operation of said canal and remedial and controlling works or either of them, either in themselves or in conjunction with any other canal or canals or works in the United States or Canada which now or hereafter may exist, is injuriously affecting or tending to injuriously affect the water levels or the navigation of Lake Superior and the River St. Mary, or other channels connected therewith or public works in that vicinity, the Secretary of War shall have the right to impose such rules and regulations as he may deem necessary for the operation of said canal and works to prevent such injury, and he may for that purpose remove said works or any part thereof, or take possession of said canal and works or any part thereof, and control the flow of water in said canal and take such other steps in connection therewith as he may deem necessary to protect the interest of navigation. If at any time he shall cause any of the said works, or any part thereof, to be removed, or shall take possession of said canal or works or any parts thereof, or interfere with the operation thereof under the authority hereby conferred, he may, upon request of any party in interest, and shall, upon the request of the Canal Company, either re-appoint the first Board herein provided for, or appoint a similar Board, to report on the whole subject and recommend such modifications, alterations, additions or devices as in the judgment of said Board or a majority thereof, shall be necessary to obviate such actual or threatened injury to navigation, and said company shall forthwith comply with the recommendations of the report of any such Board upon the approval thereof by the Secretary of War and the Chief of Engineers.

Section 4. Provided further, that neither the Secretary of War nor Chief of Engineers nor any officer or other person acting under direction of the Secretary of War shall be in any way liable for any acts done in the execution of this Act.

Section 5. Nothing herein contained shall be construed to impair the existing riparian rights of any other person or corporation nor to prevent the exercise in the future by the United States of any riparian rights it may have.

Section 6. If, at any time, an international commission shall be duly created to investigate and report upon the maintenance of the levels of navigable waters lying between the United States and Canada and the protection of navigation therein and such commission shall recommend rules or regulations regarding the same, which become operative, the Secretary of War may require the canal of said company, and all remedial and controlling works connected therewith, to be operated, maintained or changed in accordance therewith.

Section 7. In case any litigation arises in relation to said canal and works, or growing out of the operation thereof, the case may be tried in the proper court of the United States in the district in which the said canal, or any part thereof, is situated.

Section 8. That the right to alter, amend or repeal this act is hereby expressly reserved.

CONTINUED ON PAGE 8.





## DULUTH-SUPERIOR.

*Special Correspondence to The Marine Record.*

It is estimated that the Marquette range will ship out 3,000,000 tons of ore this season.

Boats were placed at Duluth this week for Midland at 2½ cents, and for Buffalo at 4 cents, shippers' option.

It is reported here that the tug General will attempt to break a way through the ice in St. Mary's river on the 15th.

Captain Joseph S. Wood, of the steamer Volunteer, of the Volunteer Transportation Company, has received orders to report at Cleveland to load his vessel and be prepared to sail.

Ten dredges will be put on the continuous contract work for the improvement of the Duluth-Superior harbor as soon as the ice goes out. This number will be increased to twelve as soon as some of the smaller private contracts are disposed of.

It is thought that the lumber shovers will demand 60 cents per hour this year. They received 50 cents last season but in some of the ports 60 cents was paid late in the season. This would make the handling of cargoes cost about \$1,000 per 1,000 feet against 60 cents a few years ago.

Navigation will probably open here by the 18th or 20th of this month. Vesselmen, however, put the date as late as May 1st. This is more with a view to the effect on rates than to the actual opening. It is said that practically all the vessels here are already chartered for grain and the rate at present is 4 cents.

The American Ship Building Co., has received orders at Chicago to build four to six big steel steamers for a line to be operated between Duluth and Montreal. A. B. Wolvin, of Duluth, is at the head of the company which has placed the order, and with him are associated several of the leading vessel men on the lakes.

Several large lumber dealers at Duluth have begun sending lumber to Chicago by rail. The straight rate is \$3 and cost of loading—30 cents per 1,000 feet. The past winter all rail shipments from Duluth were over 30,000,000 feet, partly new but enough old stock to reduce the lumber on the docks from 119,000,000 feet last fall to 90,000,000 feet now.

A Duluth man is now vice president of the Lake Michigan & Lake Superior Transportation Company. Captain W. H. Singer was elected to that position in the company at the annual meeting held in Chicago a few days ago. It was reported in Duluth six weeks ago that he had obtained an interest in the line, and when he returned he was asked if it were true. The captain answered the question by saying that he had made arrangements whereby he will handle the transfer freight of the Duluth-Chicago boat line on Lake Superior.

The taking of testimony in the Peerless collision case was concluded yesterday. Charles Kremer, of Chicago, the proctor in admiralty, who represents the steamer Peerless, who has been in Duluth taking testimony on behalf of the boat, has returned to Chicago. The Lake Michigan & Lake Superior Transportation Company, owner of the Peerless, is seeking to recover \$20,000 from the tugs Buffalo and Industry of the Union Towing & Wrecking Company and the tug Mystic of the Stevens Towing Company for damages sustained by the steamer in collision with the schooner Stewart last summer.

Another season of extensive harbor improvement is almost at hand for the Duluth-Superior harbor. Ten dredges will begin the season this year and others will be added later when some of the private contracts that are in sight have been disposed of. The dredge companies have large crews of men at work fitting out their plants for the season's operations. The dredgemen expect to get their dredges at work before the 20th of the present month, possibly by the 15th. At the rate the ice has been going lately they have been encouraged to believe that they will get an early start.

The new Great Northern steel elevator at West Superior will be completed in time to handle a share of the crop next fall. The construction of the elevator has been delayed as a result of the difficulty to obtain steel plate, but it is said that material will soon come more freely. The high cost of material is given as the cause for delaying the construction of the proposed Thayer elevator system on Rice's Point. The slip to this property will be dredged this season, however, and it is expected that building construction will begin in time to provide the new system for the crop of 1901.

At the barge works, where a fleet of some 14 vessels wintered, active preparations are being made for the opening of navigation. There are nine steamers and five barges in the yards. A steamer is on the stocks now and will be ready for launching in about three weeks. It is for the

Rockefeller line and is known as No. 144 in the yards, but will be christened the "Charles R. Van Hise." The engine for this boat is being built in the machine shops at the yard. It will be a 2,500 horse-power quadruple expansion engine and is the first quadruple expansion which has been built in any of the yards west of Chicago. The machine shops are also building an engine for an ocean vessel which is at Buffalo.

## BUFFALO.

*Special Correspondence to The Marine Record.*

The Chemung was the first steamer to load cargo here this spring.

Extensive repairs are being made on the boilers of the whaleback steamer James B. Colgate.

The lake-and-rail flour rate from Chicago and Milwaukee to New York is 12½ cents per 100 pounds; from Duluth, 14½ cents, and from Minneapolis, 19½ cents.

The first vessel of the year was unloaded at the Buffalo docks by the grain shovellers this week. The new arrangement with the men promises to avoid all trouble with strikes this season.

Thomas Williams, captain of the life-saving crew, has resigned his position on account of age and increase of infirmities. Capt. Williams has been connected with the life-saving station service in several capacities for 22 years.

Owners are holding for 70 to 75 cents on coal to Milwaukee, but shippers say they will not pay over 60 cents. There is demand for boats and for vessels for the head of the lakes, and the movement will be large when the interests concerned get together on rates.

The old west shore dock on the ship canal opposite the Great Northern elevator is to be rebuilt at once and converted into an ore receiving dock. The New York Central & Hudson River Railway Co. owns the property. The docks will be 620 feet long and 26 feet wide. It is expected that the work will be completed in two months.

Maj. Symons, in charge of the harbor of Buffalo, has issued an order forbidding the depositing of refuse, ashes, or dirt in the adjacent waters of Lake Erie or the Niagara River, except in such places as are specified, and no tug captain shall tow a dump scow without first obtaining a permit, which will be issued only to experienced tugmen.

Package freight lines have fixed their westbound rates at 54 cents for first class, rail and lake, from New York to Chicago, and 35 cents, canal and lake, with 30 cents by lake from Buffalo. The lake lines are not at all reconciled to the eastbound rate, but will be obliged to accept 12 cents from Chicago on the usual differential of 3 cents on sixth class.

The William R. Trigg Co., of Richmond, Va., has been awarded the contract for the building of the new revenue cutter for the lakes on a bid of \$257,000. The cutter is to be 178 feet in length over all, 162 feet in length between perpendiculars, moulded breadth of beam 30 feet, depth at side amidships 15 feet. She will be built of steel and will have direct-acting, triple-expansion engines, with 17, 27 and 43 inch cylinders and a 24 inch stroke.

Elevator charges at Buffalo for this season have not yet been fixed, but those who are in a position to forecast have no hesitation in naming half a cent. The pooling arrangement of last season, with a fixed charge of half a cent where charges were made, has not yet been renewed for this season, but there is every probability that it will. Owners and controllers of elevators are talking the matter over at their leisure, feeling no necessity for haste while the opening of navigation is yet two weeks off. It is intimated that there are a few small changes in last year's pooling agreement desired by some of the signers, and a leisurely readjustment is being made by exchange of views.

The latest rumor in connection with the plans of John Gordon to put two big passenger steamers on the Chicago-Buffalo route says a company will be incorporated this month with a capital stock of \$2,000,000 under the name of the Great Lakes Transportation Co. Attorney Wilbur E. Houpt, of Buffalo, says of the venture: "The plans of the new steamers have been accepted and will not be changed. No contract for the construction of the boats has yet been let, although it has been decided to have them built at the South Chicago yards of the American Ship Building Co. There will be no hitch in the present plans and the new steamers will be in commission by May 1, 1901."

An article in the New York World says: "Negotiations are in progress for a combination of the gigantic new Carnegie Company and the Cramp shipbuilding concern. Charles M. Schwab and Henry C. Frick and William and Samuel Cramp of Philadelphia have had frequent meetings, but have not yet progressed beyond the point of denying that their talks have anything to do with a shipbuilding trust. It is well known to New York steel men that ever since the Carnegie-Frick differences have been settled, the newly formed company has been looking for an alliance with some great ship building concern. Among the most profitable branches of activity in steel manufacturing is making armor plate for warships. The Carnegie mills lead all others in this industry. If the Carnegie company should obtain control of or for a strong alliance with the greatest ship building concern in the United States, it would be able to undertake contracts of unprecedented magnitude to build and armor warships for the United States government or any other power."

## CHICAGO.

*Special Correspondence to The Marine Record.*

Capt. H. H. Townsend is fitting out steamer Robt. L. Fryer.

Capt. W. J. Carter has become master of the steamer Edwin S. Tice.

Capt. T. Lillis, of Alpena, was here Friday on his way home from Duluth.

The Anchor Line steamer Schuykill loaded 65,000 bushels of corn at the Atlantic elevator on the 5th inst.

W. A. Collier, of the Great Lakes Towing Co., has been here several days in the interests of the company.

The steamer Cormorant is in dock for repairs and bottom calking, the steamer J. H. Prentice for bottom calking.

The steamer W. J. Carter left here Saturday for Manistee, the first of the lumber-carrying fleet to get away this season.

The steamer Soo City, of the Holland & Chicago line, arrived here on her first trip this season on Friday, April 6th.

The schooners Cora A., Sophia J. Luff and Ada Medora were chartered on Monday for clipped oats to Sarnia at 1¼ cents.

Capt. James Birnie, formerly of the steamer Saxon, will be master of the Canada-Atlantic steamer Ottawa, building at Toronto.

The Rutland Transit Co., formerly the Ogdensburg Line, will remove their offices here, to 36 Board of Trade Building, on May 1st.

Capt. Otto Oleson has sold the schooner Stafford to Anders Samuelson and Otta and Richard Schomberg, of Milwaukee, for \$2,000.

Capt. James McQuade, formerly of the tug Robbie Dunham, has been appointed master of the drainage canal commissioners' steamer Juliet.

The Ford River Lumber Co.'s schooners Ford River and Resumption and many others are bending their sails and getting ready for an early start.

The Ferris wheel, which has been an excellent land mark for several years, is being taken down. Vesselmen arriving off this port will miss its many electric lights.

The Graham & Morton steamer City of Louisville, Capt. D. MacLean, will make daily trips between Chicago, St. Joseph and Benton Harbor commencing on Monday next.

The Edwin S. Hartwell Lumber Co., of this city, have chartered the steamer I. N. Foster and consorts Advance and Alert from Leatham & Smith, Sturgeon Bay, for the season for \$11,500 free of running expenses.

Capt. J. S. Dunham has sold out the remainder of his fleet of schooners. The James G. Blaine has been purchased by the Ward Transportation Co. of Chicago, and the Amaretta Mosher to Capt. D. Hutcheson of Port Huron, for \$5,000.

The Tugmen's Protective Association, Chicago Lodge 2, closed their charter at their meeting last Wednesday evening with 192 members in good standing. The initiation fee to the association, hereafter, will be \$50.00 for any new member.

Fitzsimmons & Connell are building an entire new dock for the Barry Bros. Dock Co. in the light-house slip. The Barry Bros. Transportation Co., the Benton Transit Co. and the Saugatuck line will all use the Barry Bros. dock and warehouse this season.

Capt. S. R. Chamberlain purchased the schooner John Miner from Capt. Jas. L. Higgin and Mrs. W. E. Holmes for \$600. The schooner will be repaired and used for bringing cedar ties from Cheboygan and Duncan City to this port, Capt. Chamberlain having contracted to bring along 300,000 cedar ties. Capt. E. Comerford will sail the Miner.

The following vessel masters have arrived here recently to get their boats fitted out: Capt. James Owen, str. Iosco; Capt. Ballentine, str. City of Paris; Capt. Ainsworth, str. City of Venice; Capt. J. Roach, str. Welhelm; Capt. John Burns, str. E. C. Pope; Capt. A. J. Mahon, str. Selwyn Eddy; Capt. Shackett, str. Kalkaska; Capt. C. Bough, barge Annie M. Peterson.

The Chicago & Muskegon Transportation Co.'s steamer Mabel Bradshaw, Capt. L. Davidson, arrived Sunday from Holland where she had been in winter quarters, and had been put in good condition for her season's work. She left here Monday at 7:30 for Muskegon and will make tri-weekly trips on the new company's route between Chicago and Muskegon until the company's steamer State of Michigan arrives from Detroit when there will be daily service.

The body of Jack Boyd, shipkeeper on the schooner Sophia J. Luff, who mysteriously disappeared about six weeks ago, was found floating in the river near Lake street bridge Friday morning. The deceased was 61 years of age and a widower; he was born in County Down, Ireland, and had been sailing on the lakes many years. Capt. Wm. Shaw, owner of the schooner, buried his old shipmate at Oakwoods cemetery Saturday afternoon.

Geo. C. Blair, formerly of the firm of Carr & Blair, and later of the firm of H. W. Cook & Co., is now engaged in the vessel agent and insurance business under the firm name of Blair & Co., 208 Royal Insurance Building. The change in the firm of Cook & Co. was made in consequence of Mr. Cook's interest in the steamers Westover and Roanoke on the Atlantic coast, which took up his entire attention. Blair & Co. have been promised a large proportion of the old firm's business.



## CLEVELAND.

*Special Correspondence to the Marine Record.*

Capt. Benson Fox has qualified as master of the steamer Wawatam and Capt. Henry Peterson of the steamer Griffin.

The steamer Desmond cleared for the Islands on Wednesday and the steamer Samuel Mitchell took out a clearance for Buffalo with 100,000 bushels of corn.

Mr. and Mrs. George P. McKay returned this week from Pasadena, Cal., where they spent the winter. Capt. McKay is much improved in health and is ready for the season's work.

The schooner Ishpeming was sold by Capt. C. H. Ripson to Capt. Hiram Henderson for \$5,500. The schooner J. J. Barlum is loading coal at Toledo for Duluth, the first of the season.

Messrs. W. C. Farrington of Buffalo, H. A. Hawgood of Cleveland, William Livingstone of Detroit and Capt. J. G. Keith of Chicago, members of the committee of the Lake Carriers' Association, will meet Capt. Thos. Wilson's remains at New York, Saturday. The body will be brought to Cleveland on a special train over the Pennsylvania road and will arrive here Sunday.

The Pittsburg Coal Co., which will handle most of the coal shipped from the Pittsburg district, have fixed the price of fuel at all the ports between Cleveland and Erie at \$2.75 a ton, which is an advance of 50 cents a ton over last year. Shippers from ports west of Cleveland have not agreed on a price, but it will probably be \$2.65 a ton. The shippers at Buffalo have decided to charge \$3 a ton for fuel.

The steamer City of Detroit, which arrived on Monday afternoon from the city of the Straits, made the run in six hours and twenty minutes, which is about her usual running time. Capt. A. J. McKay, her master, who has sailed the steamer for the past ten years, said that he did not have to check down in the run down the lake. No ice was encountered until the Cleveland breakwater was reached. The northwest wind packed considerable slush ice between the breakwater and the piers, but the big side-wheeler had no trouble forcing a passage through it.

Vesselmen and coal shippers from Ohio ports to Chicago and Milwaukee have not agreed on rates, but it is thought that the matter will be settled in a few days. There was not a great amount of tonnage chartered at Buffalo at 70 cents to Milwaukee and 75 cents to Chicago, but the local shippers expect to fix the rates at these figures. Cargoes are offered freely and some of the owners say that they will hold out for 75 cents to Milwaukee. They may do so but a Milwaukee charter was fixed this week at 65 cents, and several cargoes were placed at opening rates, whatever that may be.

The steamer William Cassel Rhodes was successfully launched from the Lorain yards of the American Ship Building Co. Saturday afternoon. The honor of christening the new boat fell to Miss Stella Hatch, niece of the owner. The Rhodes is being built to the order of the Lower Lakes Steamship Co., of which Robert R. Rhodes is one of the heavy stockholders. She is designed for traffic through the Welland and St. Lawrence river canals and is 252 feet in length over all, 238 feet between perpendiculars, 42 feet beam and 26 feet 6 inches molded depth. The new steamer will be ready for sea by May 10.

It is reported that the American Steel & Wire Co. intends to establish a line which will control the through canal trade, giving an outlet for their products via an all water route to ocean-bound ships at Montreal, reducing the cost of transportation and holding the whip hand in the canal trade. It is believed that work on the six steamers now under consideration will be rushed and that two of them will occupy berths in the Duluth yards and two in the yards of the Detroit Ship Building Co. as soon as the big Eddy boats are out of the way, which will be in June and July respectively.

At a recent meeting of the dock managers the rate for unloading ore at Lake Erie ports was fixed at 22 cents a ton, which is an advance of six cents a ton compared with the closing rate last season, when 16 cents a ton was charged. Vesselmen of course expected an advance, but most of them say that the rate should not be above 20 cents a ton. The dock managers, however, claim that figure would not let them out, and say they will not have as much to go on at 22 cents as they did at 16 cents last season. The ore shovelers this year will receive 14 cents a ton, and the wages of the other men employed on the docks, which will also come out of the charge to the vessels, were advanced from 16 to 33 per cent. The charge to vessels for trimming and unloading ore will be 26 cents a ton, 4 cents for trimming at the shipping ports and 22 cents for unloading. From Escanaba, where all the season contracts have been made at \$1, the handling charges will be more than a quarter of the freight, and from ports at the head of Lake Superior, where the season rate is \$1.25, the vesselmen will have to give up about one-fifth of their freight for trimming and unloading cargoes.

THOSE people fortunate enough to own iron mines or stock in iron mining companies that are operated on a large scale may rest in security on the promise of large returns this year. The demand for iron ore is greater than ever before and the amount of the red mineral that has been mined during the winter months and that is awaiting shipment in addition to that still to be brought to the surface will exceed that of last year by fully 20 per cent. That means that instead of 18,000,000 tons that were shipped, by rail and lake from Northern Wisconsin, Michigan and Minnesota mines in 1899 there will be more than 20,000,000 this year.

## OWEN SOUND, ONTARIO.

*Special Correspondence to The Marine Record.*

Fitting out is the all important topic along the docks from the big carriers down to small fishing tugs.

The Chicago & St. Lawrence Navigation Co.'s steamers Rosedale and Algonquin have had an overhauling and are now in the painters' hands and will look very nice.

The Owen Sound Dredge Co. have their dredge No. 9 ready, as soon as the ice will permit to go to work, when further improvements will be made this season in the entrance to harbor.

Everything goes to show that big things are expected this season as extensive repairs and improvements in all lines for the handling and carrying of cargo. The Canadian Pacific is the largest concerned and it is making great improvements both to their vessels, and particularly ashore, in their sheds. Their shed room is to be increased with another large one on the north side of their slip to accommodate their flour trade. They are laying a double track through No. 2 shed which will be used for west-bound freight only, and all four sheds are to be fitted with electric lights driven from the elevator plant. No. 2 elevator has only a small amount of grain now, they have been forwarding it to make room for opening of navigation.

The appointments to vessels lying here are as follows: Canadian Pacific Railway—Manitoba, Capt. E. B. Anderson, Eng. Wm. Lewis; Alberta, Capt. Jas. McAllister, Eng. A. Cameron; Athabasca, Capt. Geo. McDougal, Eng. Wm. Lockerbin. Chicago & St. Lawrence Navigation Co.—Rosedale, Capt. Ewart, Eng. E. Odell; Algonquin, Capt. J. McMaugh, Eng. J. Ellis. Erin, Capt. G. Sullivan, Eng. E. J. Taylor. Armenia, Capt. W. A. Glass, Eng. D. McSorley. City of Windsor, Capt. J. Baxter, Eng. C. Wilbur. Government boats—Bayfield, Capt. McGregor, Eng. J. Nesbit; Petrel, Capt. E. Dunn, Eng. Brown; Gilphie, Capt. A. McCauly, Eng. —. Tugs—Maitland, Capt. Geo. Naugh, Eng. Geo. McDonald; Agnes, Capt. Chas. Hill, Eng. —. Rover, Capt. J. Naug, Eng. —. Schooner Mary Gordon, Capt. J. Corston.

## DETROIT.

*Special Correspondence to The Marine Record.*

Capt Isaac Watt will be in charge of the wrecker Saginaw again this season.

Mann Bros., of Milwaukee, have placed a contract with Riebolt & Wolter, of Sturgeon Bay, for a tug.

The Detroit Dredging Co. has secured the contract for dredging the harbor front at the Toledo Centennial grounds and will begin work at once.

Wallace Bros. have sold the steamer New Orleans to Capt. John Hall and others, of Buffalo, and bought the steamer W. B. Morley from C. T. Morley, for \$90,000, it is said.

It is said the Connors syndicate of Buffalo is interested in a new line of vessels being built by the American Ship Building Co. to carry grain from the upper lakes to Montreal.

The steamer Petoskey, which has been plying Lake Michigan between Chicago and Mackinac, is under lease to the Pere Marquette railroad for the Milwaukee-Holland line.

John Gordon's proposed Chicago-Buffalo line of passenger steamers may never materialize. At any rate, the Rutland Transit Co. has long been considering the plan of starting a passenger line which would be an adjunct to their through rail route.

Navigation has opened and the steamers have begun their daily trips between Chicago and Muskegon. The Mable Bradshaw, of the Chicago-Muskegon Transportation Co., will open up their route to-day. Later in the season larger steamers will take the place of the Bradshaw.

The steamer Idlewild will open the Toledo route for the White Star Line May 1, and will remain on the river until replaced by the Greyhound June 1. The Idlewild will then start on the late afternoon trips up river. The Tashmoo will make the daylight trip, leaving Detroit at 8:30 and returning in the evening. Manager Bielman states that the Tashmoo is expected to reduce the time of running, allowing two full hours at Port Huron or Sarnia in the afternoon.

Bois Blanc Island, which until three years ago was a big farm plot, has been transformed until, when the boats begin running on the excursion line June 1 next, patrons of the resort will find a practically new play ground. The company has opened the park to the southern extremity of the island, has covered several patches of the cleared farm with young trees and built roads running about the island, including a graveled drive around the entire lake and river line.

Two of the fleet of lake vessels that went down to the coast to carry coal for the Atlantic Transportation Co., and then fell into the hands of the creditors of the company when it failed, are about to come back to the lakes and run in the lumber trade. They are schooner Iron City and the tug Peter Smith. It is understood that the owners of these boats have satisfied the demands of the creditors of the Atlantic Transportation Co. and once more got their property in their own possession.

Although the Great Lakes Towing Co. has endeavored to cover every good tug on the lakes to prevent their sale to outside parties, the Maythems continue to discover a new tug every day or two and proceed to purchase. Yesterday

the Maythems paid \$18,000 for the tug George D. Nau, of Cleveland, making 17 tugs in their fleet. The trust people have endeavored to discover where the Maythem tugs will operate besides Buffalo, but thus far the independent people have kept their own counsel.

Gunn & Co., of Halifax, N. S., commission merchants and oat meal and corn millers, who have an elevator at the place named, have written Capt. J. P. Nagle, Toledo, regarding rates on corn from elevators on the lakes to Halifax. If anything like reasonable rates can be secured, the firm is open to purchase 60,000 to 80,000 bushels of corn at once. Their elevator has a capacity of 2,000 bushels an hour. They think there will be no trouble in getting return cargoes of coal. They will require 800,000 bushels of corn this year.

Information has been received from the superintendent of the Tenth life-saving district that a life-saving station has been established at Grand Marais, Mich. The station is located on the west side of the piers at the entrance to the harbor and about 100 yards from the pier. The patrol limit has not yet been established, but to the westward it will be from two and a half to four miles, as may be decided after an examination of the coast. Instead of an east patrol, a watchman will probably be stationed in the tower of the station. Between sunrise and sunset there will be a watchman on duty at the station tower.

A dispatch from Washington on Wednesday said: Congressman Weeks appeared before the House Committee on interstate and foreign commerce this morning and argued in behalf of those engaged in the life-saving service on the Great Lakes. He succeeded in having a special committee appointed to look into the question of pay of surfmen and their length of service per year. Mr. Weeks desires an increase of pay to \$70 per month and extension of time of service to ten months per year, instead of eight and a half months as at present. Mr. Weeks says there are about 700 men in the life-saving service on the lakes, and he believes they are underpaid for men holding their employment but a portion of the year.

Assistant Life Saving Station Inspector Rogers will leave on his tour of inspection of the lower lake stations the latter part of April. He has charge of the stations on Lakes Ontario, Erie, Huron and Superior. A new station has been erected this year at Grand Marais, Lake Superior, and has been accepted by the government; and Benjamin Truedell, formerly surfman at the Marquette station, will act as its keeper. This station will be manned and opened for service as soon as the necessary equipment is received. The new Cleveland station will be finished by the middle of the season. The stations will be equipped with 20 new guns, for shooting lines this year, the old guns having lost a good deal of their efficiency from age. All the stations will be open as soon as navigation has started. A keeper remains in each station all winter; this week, at all the stations, drilling for the season begins. In Capt. Rogers' district, there are 28 stations in all.

Senator McMillan, of Michigan has introduced in the Senate one of the most important bills of the session relating to the Great Lakes marine interests. His bill will carry an appropriation of several hundred thousand dollars for the purpose of defraying the cost of making a re-survey of the Great Lakes. For some time it has been felt that the present charts are not up-to-date and that a new survey should be made, so that changes of depths in channels and courses will become fully known. Senator McMillan's attention was brought to the immediate necessity for a re-survey of the lakes by the Shipmasters' Association, which was called upon to take action by Col. Lydecker, the Government engineer at Detroit. A resolution providing for a re-survey of the western part of Mackinaw Straits and the northern part of Lake Michigan, was adopted and forwarded to Senator McMillan, who, on investigation, decided that a general re-survey was necessary and has, therefore, drafted a bill providing for such work. New charts will then, of course, be prepared.

## A CORRECTION.

EDITOR MARINE RECORD.—In your issue of March 28th, under the head of your Detroit correspondence appears the item that Capt. James Foote, of Detroit, has been appointed to the position of port captain of the Algoma Central Steamship Co., and further says that the Algoma Co. has a line of freight steamers plying between Mackinac and the "Soo." The item is in error inasmuch as the steamship company is a Canadian concern and not allowed to do coastwise trade in the United States. The route between Mackinaw and Sault Ste. Marie is covered by the steamers of the Arnold Transit Co. Kindly correct and oblige.

Very truly,  
GEO. T. ARNOLD, General Manager.

THE Milwaukee Evening Wisconsin says: The great bulk of the iron ore is transported by vessel to eastern points, but a larger amount than usual will come to Milwaukee to supply the demands of the Illinois Steel Co., and the Minerva mills. The control that the large interests, notably those of Mr. Rockefeller, have secured over the shipping interests is making it more and more difficult to charter the larger vessels for other than iron ore carrying. They practically dictate the terms to other interests and that is one reason why there can be no material decrease in the price of coal. The transportation question is the great one and in the coal business and unless a break can be made in freight rates there can be no reduction.



## CORROSION OF MARINE BOILERS.

BY JOHN DEWRANCE, M. INST. C. E.

The author pointed out that the introduction of water-tube boilers and the use of higher working pressures had rendered the subject of the paper of increasing importance. Dealing first with the oxidation of iron and steel, he stated that these metals would not effect the chemical decomposition of water at temperatures below a red heat, and described experiments, made with a view to prove this, in which steel tubes partially filled with water and carefully exhausted of air were heated in high-pressure boilers for considerable periods. Setting aside fatty acids, which ought never to be admitted to a boiler, the only cause of corrosion that could to any extent affect the internal parts of a boiler which were not liable to be over-heated was the air dissolved in feed-water. Further experiments were made on the corrosion produced on iron dishes by boiling in them solutions into which air was delivered by means of a tube. From the results of these tests it appeared that air caused not much more corrosion when dissolved in sea-water than when dissolved in distilled water; and it was therefore necessary to seek another cause to account for the rapid deterioration and pitting that occurred on the heating surfaces of marine boilers.

The author contended that corrosion of highly heated surfaces in contact with sea-water was due not to the water but to the salts contained in it. It was generally accepted that when sea-water was evaporated until it crystallized, it became acid, and hydrochloric acid was produced by heating magnesium chloride in a current of steam. The sides of furnaces opposite the fire and the tube plates and hottest tubes of boilers generally suffered from corrosion, and it was known that where the fire impinged most fiercely the plates or tubes attained to a temperature far in excess of that of the water of the boiler. The author suggested that the effect of rapid boiling was that water was dashed against the heated steel and evaporated to dryness in rapid succession, and that each time this occurred with sea-water the crystallizing point was reached and a minute quantity of hydrochloric acid was produced on the surface of the steel. If this theory were accepted, it was easy to understand the pitting of a heated metal surface. Furnace scale rolled into the surface in the course of manufacture became detached and gave rise to a local thinning of the plate. Heat was therefore transmitted more freely at such places, and the steam bubbles formed in the cavity, being somewhat shielded from disturbance by the circulating water, giving rise each time to a slight explosion as the water entered the cavity. The expelled water left behind a small quantity of chlorides, and these gave off hydrochloric acid, which combined with the iron and caused corrosion. To prevent this action something might be done by freeing the surface of furnace scale.

With regard to remedies against corrosion, the author pointed out that air had been for many years a well recognized cause of corrosion, and that the boilers in which the best means have been adopted to keep out air had been those least affected. He doubted, however, whether marine-engine designers had exhausted all possible expedients in this direction. It was of paramount importance to return the water from the condenser to the boiler without allowing it an opportunity of dissolving air. As at present arranged, the air-pump was a most efficient means of causing the water to dissolve air; and the author suggested as a remedy the placing of the hot well between the condenser and the air-pump, and making it a separator of water and air. The air-pump would then pump out the air and the feed-pumps pump the water back to the boiler.

A remedy that had been recommended for all kinds of corrosion was to admit sufficient sea-water to completely cover the inside of the boiler with a thin scale of sulphate of lime. The formation of such a scale was often erratic, and even when formed the scale was apt to be cracked and thrown off by expansion. Moreover, it interposed a non-conducting layer between water and metal, rendering the latter liable to overheating. The effect of putting lime into a boiler filled with distilled water appeared to be very small. Carbonate of soda was, however, a really useful remedy with distilled water, as it practically stopped the corrosion. Zinc slabs well connected with the boiler plates were successful in protecting the plates from the action of air corrosion, but it was generally agreed that zinc could not be relied on to protect the tubes of a water-tube boiler.

It was generally recognised that oil should not be allowed to enter a boiler. Most marine engines were worked with very little oil admitted to the valve-chests and the cylinders,

but it still seemed necessary to oil the piston rods. It would be a great boon if a gland packing could be used that would run without oil, but in the meantime all that could be done was to employ the best filters and maintain them well, and use only pure hydro-carbon oil in any situation from which it could be carried into the feed-water. Animal and vegetable oils were chemically changed by the steam, and the products passed even the best filters, and were carried into the boiler. Hydro-carbon oils were now generally demanded, but it was desirable to make sure that the oil was not mixed.

The evils due to air would cease if it could be excluded, but the evils due to froth were more persistent; the only palliative being to improve the circulation, and limit the fire heat to enable the water to wet the heating surfaces as much as possible.

## NOTICE TO MARINERS.

LIGHT-HOUSE ESTABLISHMENT,  
OFFICE OF THE LIGHT-HOUSE INSPECTOR, 9TH DIST.  
CHICAGO, ILL., April 9, 1900.

ENTRANCE TO WHITE LAKE, MICH.—Notice is hereby given that this office is advised that a sand bar with but 8 to 9 feet of water over it, has formed about 260 feet outside the north pier, and about 120 feet across the channel, at the entrance to White Lake, Michigan.

To enter the harbor, keep as near the south pier as possible, until opposite the outer end of the north pier, then through the center of the channel, which has about 10½ feet of water.

SHEBOYGAN REEF BUOYS—Notice is hereby given that the red spar buoys substituted during the winter for the third-class nun buoys marking the south end and north end, respectively, of the Sheboygan Reef, Lake Michigan, are reported as having gone adrift.

The third-class red nun buoy marking this shoal will be established as early as practicable.

By order of the Light-House Board.

F. M. SYMONDS, Commander, U. S. N.,  
Inspector 9th Light-House District.

UNITED STATES OF AMERICA NORTHERN LAKES AND RIVERS  
MICHIGAN.

TREASURY DEPARTMENT,  
OFFICE OF THE LIGHT-HOUSE BOARD,  
WASHINGTON, D. C., April 5, 1900.  
LAKE ERIE.

Sandusky Bay and Vicinity—Notice is hereby given that, on the opening of navigation, 1900, the following changes in aids to navigation will be made in these waters:

South Shoal Buoy, No. 1, a black spar, will be moved about 700 feet to the eastward of its former position at the entrance to Sandusky Bay.

Jetty Buoy, No. 1½, a black spar, will be established, in about 16 feet of water, near the outer end of the jetty on the southerly side of the channel at the entrance to Sandusky Bay.

Sandusky Bay Outer Range Light Station.—Front Light.—A fixed white light of the fifth order, will be established in the structure, erected in 1897, in 5½ feet of water, in Sandusky Bay, on the westerly prolongation of the axis of the improved channel over the outer bar entrance to the bay, and about ½ mile W.S.W. 15-16 W. from Cedar Point Range Rear Light-House.

The light will illuminate 180° of the horizon to the eastward of S. 27° W. (SSW. ¾ W.) and N. 27° E. (NNE. ¾ E.), or 30° to the northward and 150° to the southward of the range line. The focal plane of the light will be 34½ feet above mean lake level and the light may be seen 12¾ miles in clear weather, the observer's eye 15 feet above the level of the lake.

The structure consists of a square tower, surmounted by an octagonal lantern with copper roof, projecting slightly from the easterly side of a square, one-story dwelling with sharp roof and dormers, on a square crib. The house and tower are of wood, painted yellowish drab.

Bearing and distances of prominent objects from the light will be:

Sandusky Bay Inner Range Front Light-House, N. 49° 10' E. (NE. ¾ E.), ½ mile.

Cedar Point Range Front Light-House, N. 72° 25' E. (ENE. 7-16 E.), ¾ mile.

Marblehead Light-House, N. 7° 18' W. (N. ¾ W.), 3½ miles.

Rear Light—A fixed white light of the fifth order, will be established in the structure, erected in 1897, in 6½ feet of water, in Sandusky Bay, on the westerly prolongation of the axis of the improved channel over the outer bar entrance to the bay, and 2,620 feet (½ mile) S. 57° W. (SW. by W. 1-16 W.) in rear of the front light.

The light will illuminate 315° of the horizon, the dark sector lying to the northwestward of the light between S. 55° 30' E. (SE. 15-16 E.) and S. 10° 30' E. (S. 11-16 E.). The focal plane of the light will be 60 feet above mean lake level and the light may be seen 15 miles in clear weather, the observer's eye 15 feet above the level of the lake.

The structure consists of a square, pyramidal, yellowish-drab, wooden tower, surmounted by an octagonal lantern with copper roof, on a square crib.

The lights mark a range line to guide from the Cedar Point Range line, through "Deep Hole" and the improved channel, to the Sandusky Bay Inner (Straight Channel) Range line.

Kelley's Island Shoal (W. End) Buoy, No. 2, a red third-class can, will be established on the southwesterly end of Kelley's Island Shoal, to the northeastward of Kelley's Island.

Vessels from the eastward bound into the bay on the northerly side of Kelley's Island should keep in mid-channel, between this buoy and the northeasterly point of Kelley's Island, until the shoal is passed, when they may round gradually into the bay.

Bearings are true; miles are statute miles.

## LAKE ST. CLAIR.

Notice is hereby given that, as early as practicable after the opening of navigation, 1900, gas-lighted buoys, as follows, will be established in Lake St. Clair:

Twenty-foot Channel—This channel, in the southwesterly part of the lake, will be lighted by eight buoys, numbered, respectively, 1, 2, 7, 8, 13, 14, 19 and 20, arranged in pairs, each pair consisting of an odd and an even numbered buoy.

Buoys No. 1, 7, 13 and 19 will each show a fixed white light during periods of 10 seconds separated by eclipses of 10 seconds, will be painted black and moored on the northwesterly side of the channel at intervals of about 1½ miles.

Buoy No. 1 will be located on the channel side and abreast of the remains of the structure from which Lower Entrance (W. side) Light was shown in 1899, about 1 9-16 miles ENE. ¼ E. from Windmill Point Light-House, and Buoy No. 13 on the channel side and abreast of the remains of the structure from which Upper Middle (W. side) Light was shown.

Buoys No. 2, 8, 14 and 20 will each show a fixed red light during periods of 10 seconds separated by eclipses of 10 seconds, will be painted red and moored on the southeasterly side of the channel, respectively abreast of Buoys Nos. 1, 7, 13 and 19.

Buoys Nos. 8 and 20 will be abreast and on the channel side of the remains of the structures from which Lower Middle (E. side) and Upper (E. side) Lights were shown.

St. Clair Flats Canal—Lower Entrance (W. side) Gas Buoy, No. 21, will show a fixed white light during periods of 10 seconds separated by eclipses of 10 seconds, will be painted black and moored on the northwesterly side of the southerly end of the dredged channel leading into the canal, in line with the St. Clair Flats Canal light-houses, and 1 mile SW. ¾ S. from the lower light-house.

## ST. MARYS RIVER

Notice is hereby given that, as early as practicable after the opening of navigation, 1900, gas-lighted buoys, as follows, will be established in the St. Marys River, to mark the improved channel at Sailor's Encampment.

Each buoy will show a fixed white light during periods of 10 seconds separated by eclipses of 10 seconds.

Rains Island Gas Buoy, No. 9, painted black, will replace the former black spar, in 18 feet of water, on a rocky shoal on the westerly side of the southerly end of the improved channel, about 500 feet SW. by W. from Encampment Crib Light.

North Middle Ground Gas Buoy, painted red and black in horizontal stripes, will replace the former red and black horizontally striped spar, in 18 feet of water, on the easterly side of the improved channel, on the northerly end of the Middle Ground, and about 800 feet N. by E. from Encampment Crib Light.

Johnson's Point Gas Buoy, No. 17, painted black, will replace the former black spar, in 20 feet of water, on the westerly side of the improved channel, about 400 feet N. by E. ¾ E. from Johnson's Dock.

Rains Island Shoal Gas Buoy, No. 19, painted black, will replace the former black spar, in 19 feet of water, on a shoal at the turning point, on the westerly side of the improved channel, about 1,400 feet N. ¾ W. from Johnson's Dock and about 3-5 mile to the northward of Encampment Crib Light.

Bearings are true; miles are statute miles.

FRANCIS J. HIGGINSON,  
Rear-Admiral, U. S. Navy, Chairman.

## POWER CANAL AT SAULT STE. MARIE.

CONTINUED FROM PAGE 5.

The following resolution was then offered by Mr. E. T. Evans and unanimously adopted by the committee:

Resolved, That this committee approves of the work done at Washington by the committee and officers of the Lake Carriers' Association in carrying on the negotiations relating to the power canal project. The committee on legislation approves of the bill as agreed upon only so far as the same relates to the safeguarding of navigation, leaving to the proper committee of Congress to protect the property, financial and other interests of the United States by provisions in the bill as finally acted upon by Congress. The Legislative committee also approves of the suggestion made by Mr. Frank J. Firth, of Philadelphia, that a bill for an international commission to take charge of the whole subject of water levels on the Great Lakes and connecting rivers, should be passed by Congress without further delay. The officers of the Association, together with the committee who visited Washington in the power canal matter, are hereby given authority to act for the Association on this subject until fully settled, such authority to include the active support of legislation for an international commission, the officers and sub-committee to report steps taken from time to time to the full legislative committee for approval and confirmation.



## WHO INVENTED STEAM NAVIGATION?

THOMAS EWBANK SECURES SOMETHING ON THE SUBJECT FROM THE SPANISH ARCHIVES.

(Steam Engineering.)

One of the most interesting and scholarly books ever written is that by Thomas Ewbank upon hydraulic and mechanics. The first edition appeared in 1841, and the book has since run through at least fifteen editions. We presume it is now out of print, but copies are to be found in many of the large libraries. It is largely historical, and treats exhaustively upon branches of the development of mechanics. In discussing steam navigation it states that in 1543 a naval officer is said to have propelled a ship of two hundred tons by steam in the harbor of Barcelona, Spain. No account of the machinery exists, except that there was a larger copper boiler, and that there were paddle-wheels at the sides of the vessel. Like all old inventors, this officer refused to explain his mechanism. The following account of the affair is said by Ewbank to be a copy of the official records contained in the Spanish Royal Archives:

"Blasco de Garay, a captain in the navy, proposed in 1543, to the Emperor and King, Charles the Fifth, a machine to propel large boats and ships, even in calm weather, without oars or sails. In spite of the impediments and opposition which this project met with, the emperor ordered a trial to be made of it in the port of Barcelona, which trial took place on the 17th of the month of June, of the said year, 1543. Garay would not explain the particulars of his discovery; it was evident, however, during the experiment, that it consisted in a large copper of boiling water, and in moving wheels attached to either side of the ship. The experiment was tried on a ship of 200 tons called the Trinity, which came from Colibre to discharge a cargo of corn at Barcelona, of which Peter de Scarza was captain. By order of Charles V., Don Henry de Toledo, the governor, Don Pedro de Cordova, the treasurer, Ravago, and the vice-chancellor and intendant of Catalonia, witnessed the experiment. In the report to the emperor and to the prince, this ingenious invention was generally approved, particularly on account of the promptness and facility with which the ship was made to go about. The treasurer Ravago, an enemy to the project, said that the vessel could be propelled two leagues in three hours—that the machine was complicated and expensive, and that there would be an exposure to danger in case the boiler should burst. The other commissioners affirmed that the vessel tacked with the same rapidity as a galley manoeuvred in the ordinary way, and went at least a league an hour. As soon as the experiment was made, Garay took away the whole machine with which he had furnished the vessel, leaving only the wooden part in the arsenal at Barcelona, and keeping all the rest for himself. In spite of Ravago's opposition, the invention was approved; and if the expedition in which Charles the Fifth was then engaged had not prevented, he would, no doubt, have encouraged it. Nevertheless, the emperor promoted the inventor one grade, made him a present of two hundred thousand maravedis, and ordered the expense to be paid out of the treasury, and granted him besides many other favors."

"This account is derived from the documents and original registers kept in the Royal Archives of Simuncas, among the commercial papers of Catalonia, and from those of the military and navy departments for the said year, 1543."

"Simuncas, August 27, 1825."

"THOMAS GONZALES."

Ewbank says, that so long as the authenticity of this document is admitted, it is difficult to perceive how other than Blasco de Garay can be accredited with the invention of steam navigation. It may appear singular that this specimen of mechanical ingenuity should have matured in Spain, but at that time Spain was, probably, the most promising scene for the display of such operations. Every one knows that half a century before, Columbus could find a patron nowhere else. Objections have been raised to the claim for Garay, and we give them as Ewbank presents them, together with his discussion regarding them. They make interesting reading, and we leave the reader to judge as to their value.

"The objections are: First, because the document was not printed in 1543; second, it does not sufficiently prove that steam was the motive agent; third, if Capt. Garay really did employ a steam engine, it was according to all appearance the reacting eolipile of Hero, and, therefore, nothing new."

"To us there does not appear much force in these reasons. M. Arago observes: 'Manuscript documents can not have any value with the public, because, generally, it has no means whatever of verifying the date assigned to them.' To a lim-

ited extent this may be admitted. Respecting private manuscript it may be true; but, surely, official and national records like those referred to by the Spanish secretary should be excepted. So far from rejecting such sources of information respecting the arts of former times, we should have supposed they were unexceptionable."

"But it is said, although a boiler is mentioned, that it is not sufficient proof that steam was the impelling agent, since there are various machines in which fire is used under a boiler, without that fluid having anything to do with the operations. Well, but the account states that which really appears conclusive on this point, viz., that this vessel contained 'boiling water,' and that Ravago, the treasurer, opposed the scheme on the ground that there would be an exposure to danger 'in case the boiler should burst.' As this danger could not arise from the liquid contents merely, but from the accumulation of steam (the irresistible force of which was, as has been observed, well known from the employment of the eolipiles), it is obvious enough that this fluid performed an essential part in the operation—in other words, was the source of the motive power."

Had it not been necessary, Garay would never have furnished in it such a plausible pretext for opposition to his project. It has also been said that if Garay used steam at all, his engine was probably the whirling eolipile. There are, however, strong objections to such an opinion. That such an engine, acting on the same principle of recoil as Hero's eolipile, might have been made to propel a vessel of 200 tons is admitted; but from modern experiments with small engines of this description, we know, first, that in order to produce the reported result, the elasticity of the steam employed must have been equivalent to a pressure of several atmospheres; and, second, that the enormous consumption of the fluid when used in one of these engines must have required either a number of boilers or one of extraordinary dimensions. Had Garay employed several boilers, the principal difficulty would be removed, as he might then have made them sufficiently strong to resist the pressure of the confined vapor; however, he used but one, and every person who has witnessed the operation of reacting engines will admit that a single boiler could hardly have been made to furnish the quantity of steam required at the requisite degree of tension."

"As the nature of this Spanish engine is not mentioned, every person is left to form his own opinion of it. We see no difficulty in admitting that he employed the elastic force of steam to push a piston to and fro—or that he formed a vacuum under a piston by condensing the vapor. Such applications of steam were likely to occur to a person deeply engaged in devising modes of employing it, in the sixteenth as well as in the seventeenth century, notwithstanding the objection so often reiterated that the arts were not sufficiently matured for the fabrication of a metallic cylinder and piston, and apparatus for transmitting the movement of a piston to revolving mechanism. The casting and boring of pieces of ordnance show that the construction of a steam cylinder was not beyond the arts of the sixteenth century, nor even of the two preceding ones; while the water works, consisting of forcing pumps worked by wheels, and also numerous other machines put in motion by cranks (and the irregularity of their movements being also regulated by fly-wheels), show that engineers at that time understood the means of converting rotary into rectilinear motions, and rectilinear into rotary ones."

"It need not excite surprise that Garay adopted paddle wheels as propellers, since they were well known before his time, being of very ancient date. Roman galleys were occasionally moved by them, and they had probably never been wholly laid aside in Europe since the fall of the empire."

AN investigation now being made of the cost of the transport services of the United States shows that enormous sums have been spent. No less than forty-nine vessels of all classes were purchased by the War Department outright at a total cost of \$8,074,455, and the enormous sum of \$5,189,093 was spent in the alteration and repairing of those vessels. The Hancock cost \$600,000, and the Grant, Logan, Sherman, Sheridan and Thomas cost \$660,000 each. It cost \$543,516 to fit up the Hancock; Grant, \$328,459; Logan cost for fitting and repairs \$483,839; the Sheridan cost \$339,169; to fit out the Sherman cost \$526,964, and the cost of fitting the Thomas was \$335,365. It will be seen that the Hancock, Logan and the Sherman cost over \$1,000,000 each, including purchase price and costs of fittings, alterations and repair.

## SHIPPING AND MARINE JUDICIAL DECISIONS.

(COLLABORATED SPECIALLY FOR THE MARINE RECORD).

Concurrent Jurisdiction of Common-Law Courts—Assertion of Rights in Admiralty.—Although the supreme court of a state, has decided that the statute giving the right to a limited liability of shipowners can be enforced in the courts of the state, this does not deprive the courts of admiralty of this jurisdiction, the right may be asserted there, and the case removed. *The S. A. McCauley*, 99 Fed. Rep. (U.S.) 302.

Limitation of Liability.—The failure of a sailing vessel to carry a sufficient supply of life preservers for her passengers, which is not required by act of Congress nor by custom, can not be charged as a fault against the owners, who entrusted her equipment entirely to a competent master, which will deprive such owners of the right to the limitation of liability provided by Rev. St. §4283. *The Jane Grey*, 99 Fed. Rep. (U.S.) 582.

Liability of Owners—Fault of Vessel or Master and Crew.—Evidence considered, and held to show that the loss of a schooner, which foundered without due stress of weather, was due either to some fault in the vessel or on the part of her master and crew, which gave a legal claim for compensation against the owners to the surviving passengers and the representatives of those who were lost. *The Jane Grey*, 99 Fed. Rep. (U.S.) 582.

Construction of Statute.—Pending freight.—The interest of the owners in a "vessel and her freight then pending," within the meaning of Rev. St. §4283, limiting their liability in certain cases, is intended to include their entire interest investment in the adventure, and they are not entitled to make any deduction from the gross amount of freight and passage money pending on account of any expenses incurred for the voyage. *The Jane Grey*, 99 Fed. Rep. (U.S.) 582.

Master and Servant—Steamboats—Negligence.—The fact that the work of unloading cotton from a barge onto a steamboat engaged in the river trade on the Mississippi was carried on after dark, and while the boat was moving down the river, and that the mate was hurrying up his work, does not show negligence on the part of the owners of the steamboat, since it is the common practice and duty of the masters and crew of boats engaged in the river trade to push their employment, and, when called for, to receive, deliver, and stow freight at night as well as in the daytime. *Red River Line vs. Smith et al.*, 99 Fed. Rep. 520.

Shipping—Carriers of Passengers—Estoppel to Deny Responsibility as Owner.—A large mercantile corporation one of whose stockholders and directors was the owner of the vessel, advertised through the newspapers and by means of signs placed on the vessel while in port that she was operated by the corporation, and would be dispatched by it on a voyage for the carriage of freight and passengers, the standing of the corporation presumably influencing passengers and shippers to some extent to patronize the vessel. On the voyage the vessel was lost, together with her cargo and many of her passengers. Held, that the corporation could not escape liability as an owner by showing that it in fact had no interest in the vessel nor her voyage. *The Jane Grey*, 99 Fed. Rep. (U.S.) 582.

Towage—Amount of Salvage.—A light-ship belonging to the United States Government broke loose from her moorings, and was carried out into Chesapeake Bay. The sea was described by many as being the highest ever known in Hampton Roads. A tug sighted the lightship, which hoisted a signal for assistance, described as a signal for a tow. The tug immediately answered the signal, but, owing to the gale of wind and heavy sea prevailing, was unable to approach her in the usual manner from the leeward, and pass a hawser, but had to go to the windward side, and use a heaving line. Three efforts to cast the line were made before it was caught, the tug, in the meantime, being in the trough of the sea, with the seas breaking over the man casting the line. Some three hours later the light-ship was brought to the wharf. Held, that \$1,200 for salvage service, though on the border line of towage service, will not be disturbed as excessive. *United States vs. Morgan*, 99 Fed. Rep. (U.S.) 570.

Construction of Charter—Expense of Lighterage.—A British ship was chartered to carry a cargo of sugar from Java. The charterers, as permitted by the charter, designated New York as the port of discharge; and the ship proceeded to that port, approaching it by the customary route from Java. The charter provided that the ship should deliver the cargo "so near the port of discharge as she may safely get, and deliver the same, always afloat, in a customary place and manner, in such dock as directed by the charterers." It further provided that the goods were to be taken from alongside the ship at the charterers' risk and expense, and that lighterage, if any, to reach the port of destination, or to deliver the cargo at such port, should be paid by the receivers, notwithstanding any contrary custom of the port. The dock designated as the place of discharge was above the Brooklyn Bridge, under which the ship was unable to pass without cutting off the top of her masts, which were unusually high and immovable. Held, that under the charter she could not be required to go to such dock, and that it required the expense of lightering her cargo to be paid by the receivers. *Mencke vs. A Cargo of Sugar ex British Ship Benlarig et al.*, 99 Fed. Rep. (U.S.) 298.





ESTABLISHED 1878.

Published Every Thursday by

THE MARINE RECORD PUBLISHING CO.,

Incorporated.

C. E. RUSKIN, - - - - - Manager.  
CAPT. JOHN SWAINSON, - - - - - Editor.

CLEVELAND, - - - - - CHICAGO,  
Western Reserve Building. - - - - - Royal Insurance Building.

## SUBSCRIPTION.

One Copy, one year, postage paid, - - - \$2.00  
One Copy, one year, to foreign countries, - - - \$3.00  
Invariably in advance.

## ADVERTISING.

Rates given on application.

All communications should be addressed to the Cleveland office,  
THE MARINE RECORD PUBLISHING CO.,  
Western Reserve Building, Cleveland, O.

Entered at Cleveland Postoffice as second-class mail matter.

CLEVELAND, O., APRIL 12, 1900.

## ARE WE TO BECOME A MARITIME POWER?

COMMISSIONER OF NAVIGATION CHAMBERLAIN'S VIEWS ON  
THE SUBJECT.

"Shall We Be a Maritime Power?" is the title of an article by Eugene T. Chamberlain, Commissioner of Navigation, for the next number of Leslie's Weekly, from which the following are extracts:

"If we are to accept the experience of successful maritime nations the recasting of the Postal Subsidy act of 1891 is an immediate necessity to the domestic building of fast ocean steel steamships for foreign trade. Will such a measure be sufficient to create an American merchant marine in foreign trade under the American flag? Unquestionable it will not, for adverse conditions of construction must be considered, as well as adverse conditions of operation already noted. The first and most important of these unfavorable conditions is the fact that Great Britain was never before so far ahead of the United States in the scale on which commercial shipbuilding is conducted in the two countries as to-day. Two British shipyards, one with an output of 77,501 gross tons, and another with an output of 80,634 gross tons, each built more steel steam vessels during the year just closed than the entire output of steel steam vessels for the year on the whole seaboard of the United States—54,643 gross tons—yet our construction of this description was the largest in our history. When it is further considered that our own product was almost wholly under the protection of the coasting laws, while the British product is almost wholly for foreign trade, the long lead we have to overcome is even more patent.

"Relative cost of material and relative wages and efficiency of labor are not the only elements to be considered in forecasting our future as a shipbuilding nation for the foreign trade. The scale on which the industry is conducted is of even greater importance, though in the last analysis it rests on the other two factors. We can export locomotives, rails and bridges in competition with Great Britain, because our railroad system is eight times greater than Great Britain's. Great Britain can export (i. e., sell to foreigners) steel steamships because she manufactures on a scale from fifteen to twenty times greater than the United States. During the calendar year 1899 Great Britain not only built practically all her own shipping, but also sold to foreign nations, or exported, \$45,000,000 of shipping.

Under existing conditions we shall continuously export ship plates, angles and beams on a large scale, not in sporadic instances, long before we begin to build the ships themselves. We shall build the smaller types of merchant steamships for Japan, and possibly for Norway and Germany, before we build and navigate them ourselves. We shall not build and navigate the larger and faster types of mail steamships until we adopt measures similar to those employed by other nations.

Existing conditions are not inherent and insuperable

obstacles to our appearance as a maritime commercial nation. They can be modified by legislation so as to change radically the entire situation. One proposition is to repeal all laws which require vessels in the coasting trade to be built in the United States, which prescribe a standard of living on shipboard for American seaman and give them a larger degree of personal liberty than is enjoyed by the seamen of any other nation, and a change in the custom by which the crews of American vessels are shipped, as a rule, in the United States. The opposite proposition is to invoke the co-operation of the Government in reestablishing American shipbuilding and navigation for the foreign trade, as elaborated in the bill introduced in the present Congress by Senator Frye of Maine and Representative Payne of New York. There is no middle ground between these two propositions, and any effort to find one will be trifling with the situation."

## A BUSINESS PROPOSITION.

President Gallaway, of the New York Central Railroad, makes the proposition that if the state of New York will pay over to his railroad 4 per cent. annual interest on the \$60,000,000 which it is proposed to spend in making a barge canal across the state, he will agree to transport at no expense to shippers all the grain they may send for shipment across New York state if that grain be designed for export. President Gallaway is no bluffer, but a keen business man, and has probably figured it out. The interest on \$60,000,000 at 4 per cent. is 2,400,000 per year, and undoubtedly the New York Central would make a good profit on carrying all grain for export at that rate. The statement shows two things. In the first place, that the state will pay the freight charges of western grain shippers for the purpose of having their grain handled in Buffalo and New York. In the next place, it shows what the real cost of transporting grain by canal is. The canal commission figure that it could be done for less cost per bushel than the railroads charge, but in that they do not figure the interest on the investment which the people must pay. When that is added, as railroads have to add it in their charges, it will bring the cost of a bushel of grain up to 7 or 8 cents. The shipper only pays 2 or 3 cents but the people of the state must pay the balance. It would appear that President Gallaway's sharp business proposition thoroughly punctures the argument for a \$60,000,000 waterway at the expense of the people of this state. The same argument would not apply for federal construction of such a canal, for in that case the western states would bear their share of cost of shipping their own products, and further than that the federal government has need of some means of communication between the seaboard and lakes to guard our northern frontier in case of war.

## THE UNITED STATES AND COALING STATIONS

The opinion expressed by the Chief Constructor of the United States Navy that a good system of colliers specially built for that country should take the place of permanent coaling stations has been freely criticised both in the United States and in this country. Rear-Admiral Hichborn believes that permanent coaling stations are expensive to maintain and difficult to protect, and would add to the hazardous situation. He may be correct as regards coaling stations owned by a country having no colonies to protect thousands of miles from its own shores, but for a naval power like this country, with a great number of possessions in far off corners of the world to protect, there is no question as to whether coaling stations or colliers are the most suitable. It would never do for a British fleet to be kept waiting for coal which did not arrive owing to the colliers having been prevented by the enemy's cruisers from reaching their destination or having been captured. A naval writer, commenting on Admiral Hichborn's proposals, expresses the opinion that the system of fixed coaling stations will never prove a decisive factor in naval warfare, for the reason that before they will have become important the supremacy of the seas between the belligerents will already have been decided in one or two great naval battles. The fleet that is defeated will abandon the seas to its enemy, and the victorious fleet will be as easily supplied by colliers as by coaling stations. This is not a novel view of the case, and it remains to be proved whether such things will happen. What we need is a fleet of colliers in addition to our coaling stations; for then supposing a British fleet were blockading an enemy's port, there would be no need for any of the ships to leave their station in order to obtain fresh supplies of coal.—The Marine Engineer, London.

## TO BUILD ANOTHER FLEET.

The following account has been sent out from Duluth:

"Contracts have just been closed with the American Ship Building Company for the construction of four or six ships for a new company that will operate a line between Duluth and Montreal. Two of the ships, according to Capt. A. B. Wolvin, of Duluth, local trustee for the shipbuilding company, will be built at the yards of the Superior Ship Building Company, at West Superior. The vessels to be built here will be schooners. There will be an equal number of steamers and two barges, each steamer being designed to tow one of the barges. Captain Wolvin says that the new line will be ready for service about next September. He is at the head of the new steamship company, but with him are associated many of the most successful vesselmen on the lakes. Captain Wolvin organized the Zenith Transit Company, which was bought out by the American Steel & Wire Company last year. He is, in addition to his large interests in lake business, the head of the Superior branch of the American Ship Building Company.

The contracts for the Duluth-Montreal boats tonnage are the first that have been made since last fall in the lake region. Prices for ship plate are again normal in comparison with other material. At the top of the boom in ship plate the price reached \$65 a ton. They are now \$48. This, however, is more than double the price of ship plate at the time the boom in the steel rate began.

One great advantage of the new line will be that its boats need not lay up during the winter if ocean freights are high. They can load at lake ports directly for European points and then engage in general ocean trade until spring. It is likely they will be built fully equipped for ocean service and receive insurance ratings that will enable them to sail to any part of the world.

The new line will be the first in the field since the Canadian government completed its great waterway around the rapids of the St. Lawrence by which boats drawing 14 feet of water can steam directly from Chicago and Duluth to the ocean steamships at Montreal. For two generations vast sums were spent in building this ship canal but by mid-summer next it will be fully completed at a cost of over \$60,000,000. American capitalists have had an eye on the Montreal route for over a year, but of all the projects brought forth this is the first one that has progressed to the actual signing of contracts for the construction of ships to operate upon it.

"Yes, it is true that the American Ship Building Co. has contracted to build boats for a new Montreal line," said W. L. Brown, president of that corporation, in Chicago yesterday. "But the details are yet to be determined. The boats will carry about 75,000 bushels of wheat and will be of steel construction. Specifications are now being drawn. There is a great field in the Montreal trade, and vessel owners seem disposed to enter it."

## TRANS-ATLANTIC TRAFFIC.

The movement of passengers across the Atlantic has assumed enormous proportions and the steamship lines carrying passengers to and from New York and European ports are doing a profitable business. The total number of passengers landed at New York during the year 1898 by fifteen of the leading lines of trans-Atlantic passenger steamers is given as 284,812, of which number the six leading lines carried 199,086. Of the total number of arrivals in New York during the year, 69,321 came as cabin passengers and 215,491 in the steerage. First in rank of passenger carriers we note North German Lloyds, who during the year carried into New York 17,894 cabin and 53,223 steerage passengers; second in importance, the Cunard Line brought in 16,692 cabin and 20,463 steerage passengers; third, White Star Line which landed 10,332 cabin and 20,764 steerage passengers; fourth, Hamburg-American line landing 8,056 cabin and 20,092 steerage passengers; fifth in rank the French Line which landed 5,203 cabin and 15,511 steerage passengers, and sixth in importance as a passenger carrier we note the American Line which landed 5,037 cabin and 5,819 steerage passengers. It thus appears that the above six lines carried into New York during the year more than two-thirds of all the passengers landed. When it is considered that \$45 is considered the average fare we get a conception of the enormous amounts of money paid to the ocean liners for passage. Taken in connection with the passenger trade the ships also carry a full load of goods and freight on which further sums are realized, and large sums must be realized in order to keep the liners running.



### THE FUTURE DEVELOPMENT OF THE STEAM ENGINE: A FORECAST.

At a recent meeting of the Manchester, England, Association of Engineers, Mr. Alfred Saxon, M. I. Mech. E., read a paper on "The Future Development of the Steam Engine: a Forecast." With regard to pressures, Mr. Saxon said these would be as high as the material and construction of the boilers would admit of. He had no doubt that with a revolution in boiler construction, which they might confidently expect, standard pressures would rise to 500 lb., and probably even higher. Expansive working would be more utilized. Probably it would not be found necessary to go beyond quadruple expansion, even with the high pressures now suggested. When they considered that in locomotive work, in simple engines, pressures up to 200 lb. could be used, it did not seem necessary to multiply the number of cylinders, but to regulate the point of cut-off and the proportions of the various cylinders employed to each other, to utilize the expansion of steam to the fullest practical extent. As to engine speeds, the double-acting vertical type of engine, with forced lubrication, had opened up great possibilities in this direction; there was a limit to the velocity of the reciprocating parts of such an engine, but this did not seem to have been reached as yet. With stronger and lighter materials available—which would be produced as the necessity arose for their use—and still greater attention paid to the more perfect balancing of the rotating and reciprocating parts, higher speeds would be attainable, and he had not the slightest doubt that in stationary land practice they would be able to approach the high speed of 1,500 ft. per minute. As to economy, reliable tests of the best steam engines of today showed a steam consumption varying from 12 lb. to 10 lb. of steam per indicated horse power per hour, or, say,  $1\frac{1}{2}$  lb. to  $1\frac{1}{4}$  lb. of coal. The gain in economy in the new century must be very gradual and comparatively small; no doubt if the gain were taken on a percentage basis a saving of something like 50 per cent. on the present steam and coal consumption might reasonably be predicted. The probabilities of the century in this respect seemed to be to reduce the steam consumption to about 8 lb., and the coal per indicated horse power per hour down to 1 lb., or even to  $\frac{3}{4}$  lb. of the best fuel burned under the most efficient conditions, in the newest and best types of boiler plant. From experience already gained, it would seem that for lighting and electrical traction the use of very large units of power would be most economical. In all probability the units of power adopted in the Glasgow corporation scheme, viz: 5,000 indicated horse power, would be well up to the producing capacity of the machine tools in our stationary engineering works at the present time, and he had no doubt that units of 10,000 indicated horse power would be the limit for many years.

The direct-acting, inverted, vertical engine, with the cylinders arranged for expansive working, have proved its adaptability to meet existing conditions in central power stations, and with still higher steam pressures and increased piston speed, together with the application of forced lubrication, it was, in his opinion, the engine that would meet the new century's demand in this respect. He predicted that engine workers in the new century would make a great point of standardising and classifying their engine designs, and that suitable units of power would be adopted to meet the varied demands. He was also of opinion that the use of small steam engines and engines of moderate sizes, working at low pressures, would be discarded, or the latter altered before the first quarter of the new century had expired. Only compound, triple, and quadruple expansion engines of the best type would be used, and these, in most cases, for the generation works. He forecasted the general adoption of superheating and re-heating in land practice before there was a resort to much higher pressures than were now in use; after the fullest benefits had been secured from this source there would come the demand for higher pressure. The steam turbine engine was likely to be a formidable competitor in electrical work, but on account of its high speed would not prove so universal in its application as the reciprocating steam engine. Simplicity in the valves and valve gear seemed to be the lesson which the steam turbine engine taught the reciprocating engine builder, and in this respect a diminution of cost and wear would probably be arrived at without interfering with the economy of the steam engine; although the governing cylinder would still of necessity retain valves and valve gear for the measurement and control of the steam to be admitted for work to be done during each stroke; still he ventured to forecast the abolition of the valves and valve gear of the succeeding cylinder or cylinders.

Although modern steam locomotives were not particularly wasteful, and up to now the electric locomotive had been more or less of a failure, yet he believed the steam locomotive was doomed to extinction in the new century. The steam tram engine could not compare with electric car traction worked from the central station, and in the same way he was of opinion that with generating stations on a large scale, placed at suitable distances apart on the main lines, electric traction would gradually supersede steam locomotive traction. In marine practice electricity did not seem to be available for distributing the enormous powers developed, but for auxiliary purposes, such as lighting and hoisting, and in a hundred different ways, it would be of service, and herein also the great competitor to the reciprocating marine steam engine would be found in the rotary steam turbine engine.

### ARBITRATING A COLLISION CASE.

On the night of November 3, 1898, the steamers Starucca and Maritana collided just outside the entrance to Buffalo harbor and \$40,000 damage was done to the boats. To settle which boat was responsible for the collision the matter was left to arbitration, and Harrington Putnam, a lawyer of New York City, was selected arbitrator. Testimony is now all in and the decision will be given in a few weeks.

### AN INJUNCTION ASKED FOR.

A bill has been filed in United States Circuit Court at Chicago by the Great Lakes Towing Co., asking that an injunction be issued restraining Barry Bros. from doing towing and wrecking business. The Barry's sold out their plant to the syndicate last season and at that time, it is claimed, signed an agreement that they would not enter business again for a term of five years. It is claimed they have broken this agreement, and not only have bought and operated tugs but are trying to sell their boats to the new company and are threatening competition if their price is not paid. The bill states that \$177,000 was paid last year for the Barry tug line, and of this more than \$25,000 was paid for the good will of the business.

### STEAMBOAT OFFICERS APPOINTED FOR THE SEASON OF 1900.

**HARTS STEAMBOAT LINE**, Green Bay, Wis.—Str. Fannie C. Hart, Capt. H. W. Hart; Eng. Chas. Dennis. Eugene C. Hart, Capt. C. B. Hart; Eng. George Coulter. C. W. Moore, captain not yet named; Eng. Jules Schram.

**ALEX. R. SINCLAIR**, Duluth, Minn.—Str. Simon Langell, Capt. J. A. Stewart; Eng. Robt. Cameron. H. A. Root, Capt. Wm. F. Thompson; Eng. —. J. C. Suit, Capt. Edward England; Eng. Arthur Thompson. Bge. Armac, Capt. N. C. Kendell.

**L. S. SULLIVAN**, Toledo.—Str. David W. Rust, Capt. Wm. J. Leaver; Eng. Lou F. De May. Schr. C. C. Barnes, Capt. Dan Benson. Geo. G. Houghton, Capt. E. N. Van Dusen. Chicago Board Trade, Capt. Geo. R. Bonnah. John Schnitts, Capt. Jas. Robinson. N. N. Badger, Capt. Wm. Bonnah. Maumee Valley, N. Scanlon.

**MONTREAL TRANSPORTATION CO.**, Montreal, Can.—Str. Active, Capt. John Gaskin; Eng. John Hamilton. Bronson, Capt. Joseph Murray; Eng. Robert Hepburn. Bannockburn, Capt. Alex. Milligan, Jr.; Eng. Richard Taylor. D. G. Thompson, Capt. James Murray; Eng. Geo. Henderson. Glide, Capt. Thos. Murphy; Eng. M. Rankin. Glengarry, Capt. Gordon Kean; Eng. Charles Napper. Jessie Hall, Capt. Chas. Martin; Eng. Geo. Tuttle. Rosemount, Capt. Jas. Mawdesley; Eng. John Evans. Lake Bge. Dunmore, Capt. John Phillips. Kildonan, Capt. Maxime Lefebvre. Minnedosa, Capt. C. R. Irwin. Melrose, Capt. Jas. Fleming. Selkirk, Capt. H. Colvin. Winnipeg, Capt. Jas. Kirkwood. River Bge. Alberta, Capt. Frank Poirier. Acadia, Capt. Louis Beniot. Bella, Capt. Peter Lalonde. Cleveland, no appointment. Chicago, Capt. Arsene Charlebois, Sr. Colborne, Capt. E. R. Roy. Corn Crib, no appointment. Cornwall, Capt. H. Boyer. Detroit, Capt. Truffie Daoust. Dorchester, Capt. Jos. Page. Eagle, Capt. Arsene Charlebois, Jr. Hector, Capt. Theo. Leduc. Glengarry, no appointment. Iowa, Capt. Joseph Daoust. Jennie, Capt. A. Sammersail. John Gaskin, Capt. Israel Daoust. Lancaster, no appointment. McCarthy, no appointment. Montreal, Capt. A. Delisle, Sr. Maggie, Capt. Adelard Monnette, Sr. Nebraska, Capt. Cestra Lebeouf. Regina, Capt. Alfred Lalonde. Senator, Moise Leduc. Star, Capt. Ernest Secotter. Toledo, no appointment. Toronto, Capt. M. Bissonnette. Wheat Bin, Capt. Albert Major. Cobourg, Capt. Frank Lafrance. Brighton, Capt. Nelson Mallette. Kingston, Capt. Alex. Hebert.

**Failure to Furnish Staging.**—Where the use of staging or connecting planks in transferring cotton from a barge to a steamboat was neither customary nor practical, the failure to furnish such staging was not negligence. Red River Line vs. Smith et al., 99 Fed. Rep. (U. S.) 520.

### UNITED STATES MERCANTILE MARINE.

Representative Grosvenor of Ohio, chairman of the House committee on merchant marine and fisheries, has presented to the House the amended shipping bill and the report in its support by the majority of the committee, constituting all the Republican members. The report says in part:

"Our abundant natural resources and our industrious and increasing population make it of great value to increase the means of profitably disposing of our surplus productions, and as our export trade is increasing so will be home consumption and employment.

Our exporting competitors have for a long time been devoting themselves to increasing their export trade and getting possession of markets. Africa is an example of the methods pursued of partitioning territory or recognizing 'spheres of influence,' possibly eastern Asia being eventually destined to receive similar treatment."

"China," the report continues, "may be left open to fair and equal competition with respect of trade with the United States," in which event, the committee believes, "one of the largest, if not the largest, fields for the trade and commerce of other nations will be open to those possessing the facilities for taking advantage of opportunity."

The nation first in the field "with its own productions and its own means of transportation" will achieve the largest success, for which reason China must remove the barriers which now almost entirely exclude foreign intercourse." Other parts of the world in which our commerce holds so small a share would repay particular study.

The need of abundant establishments for the construction, docking and repairing of ships, "an adequate navy" and "a great fleet of merchant vessels," all in readiness for any exigency, is asserted by the report to be "a self evident proposition." On these grounds other nations have fortified themselves by increasing their sea power in all of the ways referred to, with the double object "of strengthening their facilities and power of carrying on foreign commerce." After giving the statistics on the extent of tonnage the world over, the cost of shipbuilding, wages, etc., Mr. Grosvenor's report sums up "cardinal purposes of the bill" as follows:

"First.—To aid in a real, practical way—and no doubt under existing conditions the only possible way—in bringing to the greatest extent possible our own foreign trade back into our own hands, and thus saving to our country certainly more than \$100,000,000 transportation money annually which now goes to increase the wealth of other nations.

Second.—To greatly increase the exportation and sale of all kinds of our superabundant productions and especially in the vast regions of eastern Asia, evidently very soon to be opened to the trade of the world. This is a trade that the nation best prepared to engage in will necessarily get the greater proportion of by its own ships under its own flag and with its own postal facilities and its own commercial establishments for the disposal of its productions.

Third.—To bring into existence at the earliest possible time a great American fleet of merchant vessels, built in our own country, with our own material and by our own labor, as a most necessary means of national aid and national safety in time of international war or other disturbances, the probability of which is unhappily not small even now.

Fourth.—To increase the number of our citizens who will be educated in sea faring work and who will thus have the skill and be better able to defend the honor and interests of our country on the seas however suddenly the occasion may happen.

Fifth.—The bill we think will, if the proposed compensation is large enough, accomplish these great and important purposes.

"It will, of course, take a considerable time to reach the desired end, but the sooner the policy is entered upon the sooner and easier will be its accomplishment.

The means proposed are open to the capital, the enterprise and the skill of all our citizens alike and on equal terms. There is no ground for any form of monopoly."

### EASTERN FREIGHTS.

Messrs. Funch, Edye & Co., New York, report the eastern freight market as follows:

Under increased offerings of tonnage the enquiry for grain boats from Range to Cork f. o. has tapered off, and steamers for May loading cannot readily be placed under owners' offer of 3s. 9d. The demand for larger boats for picked ports has, however, been well maintained, and, at the prevailing rate of 3s. 3d., some further business could probably be effected. The demand of belated shorts at the Gulf ports for April loading appears to have been filled, and no inclination to prevail for the fixture of later tonnage, except at a marked decline from present figures. The enquiry at timber ports is likewise less pressing, and charterers disinclined for later commitments at the present. The decline in the price for Welsh coal at the moment interferes with shipments from this country for the North of Europe, and the demand from the Mediterranean is less pressing; a revival of the enquiry prevailing during the early months of this year will have to take place before coal shipments will again be an important factor on our freight market. Case oil shipments, in default of sail tonnage, are seeking steamers, and some prompt boats could be placed at very satisfactory figures for Java and Japan.

Our subjoined list shows but few charters of sailing vessels, the continued scarcity of tonnage preventing a more lively business. Rates in all directions remain very firm, advancing in instances under a fair demand for long voyage business as well as for lumber from Eastern ports to South America.



## Chicago Nautical School

1513 Masonic Temple,  
CHICAGO.

W. J. WILSON,  
(Late Lieutenant U. S. Navy),  
Principal.

A full and complete course of instruction in lake and ocean navigation. Also special branches taught those desiring to qualify themselves for better positions in the marine service. \$200 in prizes (Great Lakes Register) awarded annually to students. Students taught by correspondence. Students may begin at any time. Send for circular.

## Pintsch Gas Lighted Buoys.

Adopted by the English, German, French, Russian, Italian, and United States Light-House Departments for channel and harbor lighting. Over 800 gas buoys and gas beacons in service.



### Burn Continuously

from 80 to 365 days and nights without attention, and can be seen a distance of six miles.

Controlled by

**THE SAFETY CAR HEATING  
AND LIGHTING CO.**

160 Broadway, New York City.

**BAINES BROS.**  
PROVISION MERCHANTS AND SHIPPERS OF  
**BEEF, MUTTON, PORK & POULTRY**  
LARD, SAUSAGE, ETC.  
VESSEL SUPPLIES A SPECIALTY  
43, 44 & 45 ELK STREET MARKET  
BUFFALO, N.Y. PHONE SENECA 346

### TREASURY DECISION.

RULES FOR THE GUIDANCE OF PILOTS.

Opinion of the Solicitor of the Treasury.—Rules of the Board of Supervising Inspectors, Atlantic and Pacific Coast Inland Waters, not in conflict or inconsistent with the statutes.

TREASURY DEPARTMENT, March 29, 1900.

GENTLEMEN: Referring to your communication of the 14th inst., presented in person by Mr. Robert D. Benedict, one of the signers thereto, alleging that certain of the rules for the guidance of pilots, Atlantic and Pacific Coast inland waters, adopted by the Board of Supervising Inspectors, 1899 and 1900, were in conflict or inconsistent with the statutes under which the supervising inspectors claim authority to act in such matters, having been referred to the Solicitor of the Treasury for an expression of his opinion upon the legal points presented in your communication, as per your request therein, that officer has rendered an opinion, dated the 27th instant, adverse to your contention.

Appended is a verbatim copy of the Solicitor's opinion.

Respectfully, L. J. GAGE, Secretary.

HON. W. W. GOODRICH,  
Judge, Supreme Court, State of New York, et al.  
New York, N. Y.

DEPARTMENT OF JUSTICE,  
OFFICE OF SOLICITOR OF THE TREASURY,  
WASHINGTON, D. C., March 27, 1900.

SIR: By reference of March 20, 1900, Assistant Secretary Spaulding transmits to this office certain correspondence relating to the 1899 edition of the Pilot Rules of the Board of Supervising Inspector of Steam Vessels, and requests my opinion upon the questions whether certain of those rules are in conflict with the act of June 7, 1897, relating to collisions.

The rules in question have been criticised in the following particulars:

(1) The act of 1897, Rule IX, article 19, provides as follows:

"When two steam vessels are crossing so as to involve risk of collision, the vessel which has the other on her own starboard side shall keep out of the way of the other."

Inspector's Rule II provides as follows:

"When steamers are approaching each other in an oblique direction, as shown in the diagrams of the fourth and fifth situations, so as to involve risk of collision, the vessel which has the other on her own starboard side shall keep out of the way of the other, which latter vessel shall keep her course and speed; the steam vessel having the other on her starboard side indicating by one blast of her whistle her intention to direct her course to starboard, so as to cross the stern of the other steamer; and two blasts, her intention of directing her course to port, which signals must be promptly answered by the steamer having the right of way, but the giving and answering signals by a vessel required to keep her course shall not vary the duties and obligations of the respective vessels."

It has been objected to this rule that the situation therein described is fully provided for by the act above set forth, that the term "crossing" includes vessels whose courses meet at converging or diverging angles, and that the Board has no right to make a particular rule for a course "in an oblique direction."

The act of 1897, article 31, section 2, provides that the Board shall establish such rules to be observed by steam vessels in passing each other "not inconsistent with the provisions of this Act as they from time to time may deem necessary for safety."

I am unable to see that this portion of inspector's Rule II is "inconsistent" with the act. Whether the rule be superfluous, or injudicious, or likely to lead to confusion, is a question which I do not feel called upon to consider, so long as it is not in conflict with the act.

(2) It is objected that the provisions of inspector's Rule II that the vessel having the other vessel to starboard shall indicate by "two blasts her intention of directing her course to port" enables the restricted vessel to cross the course of the vessel having the right of way, in violation of Rule IX, article 19, of the act of 1897.

This objection would be well founded if it was intended by the rule to give the restricted vessel the right to cross the bows of the privileged vessel arbitrarily, or at pleasure, by merely indicating her intention with two blasts of the whistle. But this rule must be read in connection with article 22, Rule IX, of the act, which provides that the restricted vessel must "if the circumstances of the case admit avoid coming ahead of the other;" and with article 27, which provides that in obeying the rules regard must be had to "any special circumstances which may render a departure from the rules necessary in order to avoid danger." Assuming that the rule was intended to provide for such cases, I can see no objection thereto, other than the want of language restricting its application to cases in which a departure from articles 19, 21, and 22 of Rule IX of the act of 1897 is made necessary by the circumstances of the case. This objection would be removed by the insertion of the following words "where that course is justified by the special circumstances of the case, under articles 22 and 27 of Rule IX of the Act of 1897," immediately after the words "her intention of directing her course to port" in the last clause of the rule in question.

(3) It is further objected that the import of whistles given in Rule II is wrong in this, that one blast does not, on inland waters, show an intention "to direct her course to starboard," but merely "to pass on the port side of the other vessel," and that the language used tends to confound inland with international or "high-seas" signals.

This objection raises merely a question whether the use of certain terms in the rule has been judicious, and involves no question as to inconsistency or conflict with the statute, and hence presents no question proper to be considered by me.

(4) Inspector's Rule III provides as follows:

"If, when steam vessels are approaching each other, either vessel fails to understand the course or intention of the other, from any cause, the vessel so in doubt shall immediately signify the same by giving short and rapid blasts, not less than four, of the steam whistle; and, if the vessels shall have approached within half a mile of each other, both shall be immediately slowed to a speed barely sufficient for steerage-way until the proper signals are given, answered, and understood, or until the vessels shall have passed each other."

The first clause of this rule is a transcription of Rule III of the act of 1897; the second clause was added by the board of inspectors, and has existed, in substantially the same form, for a number of years.

It is objected that the last clause is in conflict with Rule IX, article 21 of the act of 1897, which provides as follows:

"When, by any of these rules, one of the two vessels is to keep out of the way, the other shall keep her course and speed."

In other words, the objection is that Rule III, in requiring both vessels to slow down when the intention of the one is not understood by the other, violates the provision of the act entitling the privileged vessel to keep her course and speed.

It is to be observed that the act applies only to cases in which one vessel is required "to keep out of the way of the other," that is, cases in which one of the vessels is restricted and the other privileged. It would seem plain, therefore, that the rule is not in conflict with the statute so far as vessels approaching each other "head-on" are concerned, for in such a case both vessels are required to keep to the right, and the expression "one of the two vessels is to keep out of the way" can not be applied to either. There are many cases in which it has been held that a prompt observance of the rule in question would have prevented collision. (The British Queen, 88 Fed. Rep., 1003, 1008; in re Central R. R. Co. of N. J., 92 F. 1015.)

If slowing down is conducive to the safety of vessels approaching each other "head on" and misunderstanding signals and intentions, I am unable to see why it would not also be conducive to the safety of vessels crossing the courses of each other. It is true that, the vessel having the right of

way, is entitled, under ordinary circumstances, to keep her speed as well as her course, in pursuance of article 21, above. This contemplates that there is no misunderstanding as to the right of way, and I am of the opinion that this provision was intended to apply only to cases in which the signals and intentions of each vessel are understood, and not to a case in which either vessel is in doubt as to what the other intends to do. To say that the restricted vessel must "keep out of the way of the other" when she does not understand what course the other intends to take seem unreasonable. It does not seem possible that Congress intended that the privileged vessel, in close proximity to the other, after being warned by successive blasts of the whistle that her signals and intentions are not understood, or after having given similar warning that she does not understand the signals and intentions of the other, should bear down upon the other without abatement of her speed. It might, indeed, happen that keeping her speed under such circumstances would avoid a collision (as in the case of The Britannia, 150 U. S. 130), but it can hardly be doubted that in most cases of misapprehension and misunderstanding the safest course would be the slowing down of each vessel.

I can not resist the conclusion that if Congress intended that either vessel should keep her speed under such circumstances they would have so declared, in plain and unmistakable terms, by an addition to Rule III, as it stands in the act of 1897.

Very respectfully,  
MAURICE D. O'CONNELL, Solicitor.

The Secretary of the Treasury.

### TRANSPORTATION OF PASSENGERS.

Passengers may be transported on foreign vessels to foreign ports and brought back to the United States on American vessels.

TREASURY DEPARTMENT, April 2, 1900.

SIR: This Department is in receipt of your letter dated the 20th instant, inquiring whether the management of the Canadian steamer North King may legally issue to passengers on that vessel from Charlotte, touching at Port Hope and Coburg, and then proceeding to Rockport, Canada, tickets enabling them to continue their journey from Rockport to Alexandria Bay in an American steamer.

The Solicitor of the Treasury, on submission of the matter to him, expresses the opinion that the question should be answered in the affirmative, he finding no act of Congress forbidding such transportation. The act of February 17, 1898, provides that no foreign vessel shall transport passengers between ports or places in the United States either directly or by way of a foreign port, but does not seem to embrace cases like that you present. Action may be taken accordingly.

Respectfully,

O. L. SPAULDING, Assist. Secretary.

Mr. Howard S. Folger, Kingston, Ontario.

### MARINE PATENTS.

Patents on marine inventions issued April 3, 1900. Reported especially for the MARINE RECORD. Complete copies of patents furnished at the rate of ten cents each.

636,522. Cooling or ventilating attachment for cars or vessels. G. A. and R. F. Dunn, Dinuba, Cal.  
646,553. Wharf construction. H. C. Holmes, San Francisco, Cal., assignor of one-half to Carl Uhlig, same place.  
646,591. Ventilating and lighting arrangement for steamers and steamships. Arendt Angstrom, Toronto, Canada, assignor of one-half to F. E. Kirby, Detroit, Mich.  
646,712. Water motor. J. E. Symons, Boise, Idaho.  
646,713. Water wheel. J. E. Symons, Boise, Idaho.  
646,745. Clutch for propeller shafts. A. A. Low, New York, N. Y.  
646,767. Lock gate. T. T. Stoddart, Ottawa, Can.  
646,769. Hydraulic dredge. S. C. Swarts, Bangely, Col.  
646,800. Means for preventing ships from sinking. F. O. Broughton, Anerley, England.



## ICE REPORT OF THE LAKES.

U. S. WEATHER BUREAU.

LAKE MARINE SERVICE }  
DETROIT, MICH., April 10, 1900 }

## SUMMARY OF ICE CONDITIONS.

The reports indicate that the ice has decreased in amount over western Superior and has remained about stationary over the eastern portion, except that the ice has softened under the influence of the warm weather of the fore part of the week. There is a belt of pack ice about two miles wide extending along Minnesota Point at Duluth, while outside of that there is open water, extending to the islands. In St. Mary's River the ice has softened under the influence of the warm weather, but the cold of the last few days has held it stationary, so that not much has been gained, and it will require ten days of warm weather before boats can force a passage through the river. The ice in Green Bay has decreased in thickness and softened and with ten days of warm weather will break up. The ice has moved out of "Death Door" passage. There is very little ice over the south half of Lake Michigan, it being confined in broken fields to the extreme southeast portion; from Charlevoix north to the Straits the ice continues in about the same condition, the cold of the last few days having offset the warm weather of the fore part of the week. In the Straits the ice has broken up between St. Ignace and Mackinac Island, but to the westward the ice has stiffened and it will require ten days of warm weather to open the Straits. In Lake Huron the ice appears to be confined to the extreme south end; the northerly winds have again bridged the mouth of the lake with solid pack ice; the field extends out of vision. There is some solid ice near Grand Pointe at the Flats, otherwise the St. Clair and Detroit rivers are open. In Lake Erie the ice-fields extend from just east of Cleveland piers to Buffalo with open water off Erie; the harbor at Buffalo is open, with about a mile of open water outside, beyond this, ice about ten inches thick extends as far as can be seen. There is no ice in Lake Ontario, except at the east end.

In comparison with the same period last year there appears to be less ice over western Superior and about the same over the eastern portion; about the same in the Straits and in southern Lake Huron, while there is more over eastern Lake Erie. The present indications are that it will require ten days of warm weather to open the Straits and St. Mary's river for the passage of boats for general navigation. The Detroit and Cleveland Line opened the season on the 9th, which is the latest for a number of years. Navigation opened with the passage of the Straits last season on April 27th and the first passage through the "Soo" canal was on April 29th. It is believed that it will open a few days earlier this season.

A report will be issued on the 17th and special reports will be issued in case the ice breaks at the Straits. The usual details follow:

## LAKE SUPERIOR.

Duluth (10th)—No ice of consequence in the harbor; heavy pack ice against Minnesota Point extending two miles into the lake.

Two Harbors—Ice rotting rapidly in the harbor; very little ice outside; steamer left for north shore points on the 6th.

Bayfield—The ice is honeycombed and soft; open water can be seen in south channel; boats will have no difficulty in reaching the harbor.

Washburn—Warm winds have turned the ice black.

Ashland—Ice is going fast, and present indications are that the ice will be gone by the 25th.

Eagle Harbor—The warm weather of the past week has softened the ice; some open spaces can be seen; ice-fields stationary.

Whitefish Point—Bay solid; ice-fields extending as far as can be seen from the light-house tower; ice 20 inches thick.

Sault Ste. Marie (10th)—Last three nights of cold weather stiffened ice considerably; 16 inches thick in the harbor; in Mud Lake it is believed to be a little thicker; very little snow-ice. Ten days of favorable weather will open river for boats.

## LAKE MICHIGAN.

Gladstone (6th)—Warm weather honeycombing the ice badly; reduced to 24 inches.

Escanaba (10th)—Ice decreased one inch since Saturday; four warm days would probably cause ice to break up.

Green Bay—River open; open water in the bay extends out for some distance; navigation will probably open about the 15th.

Sturgeon Bay (6th)—Ice is broken up south of the bridge and navigation is open to the canal; ice has been broken to Menominee by car ferry.

There is no ice reported from any station on the west shore between Keweenaw and Chicago.

Michigan City—Harbor clear; shifting ice-fields in the lake does not seriously impede navigation.

Glen Haven—Practically no ice in sight; mail carrier making trips to Manitou in small boat.

Mackinaw City (9th)—Weather the past week has been warm and has cut away the ice in the Straits very fast; one more week of such weather would have opened navigation, but yesterday and to-day have been cold, holding ice stationary. If present cold snap does not last more than two or three days will predict opening about 25th.

## LAKE HURON.

Mackinac Island—Warm weather of past week has cut the ice. No ice between Island and St. Ignace; steamer Lorain L. is making regular trips; ice in Straits unbroken as far as can be seen but is wearing fast. With a week of warm weather and high winds the Straits will open.

Detour (5th)—Ice broken up as far as Frying Pan Island; above that point it is going fast; now unsafe for teams to cross; ice in Mud Lake softening.

Cheboygan—Ice in the Straits opposite this port becoming very so t.

Alpena—No ice in Thunder Bay or about the islands; none visible from the life saving stations on Middle or Thunder Bay Islands.

Harbor Beach (7th)—Harbor ice well broken up; boats can now reach the docks; no ice in sight in the lake. Navigation should open by the 20th.

Point aux Barques—Some slush ice along shore; no ice out in the lake.

Port Huron—Northerly winds have caused the ice to pack in a solid bridge across the mouth of the lake; the ice extending as far as can be seen; more ice now than same period last year; indications that navigation will be delayed until near May 1st unless ice bridge breaks.

## LAKE ERIE.

Toledo—No ice in river or bay, navigation can be resumed immediately.

Put-in-Bay—Small fields of ice remaining in the south passage; no ice to the eastward of the islands; ice lodged between the islands and to the westward, but is slushy.

Kelley's Island (7th)—There is considerable ice to the north and west of the island; steamer Eagle running to Sandusky.

Huron—No ice in sight in the lake and navigation opened; fishermen driving net stakes in the lake.

Lorain—Harbor clear of ice; there is a little broken ice out in the lake, but it does not obstruct tugs passing out or in.

Cleveland (10th)—Lake clear to all points west; slush ice covers harbor; large field opposite east end of city extends out five miles and to northeast horizon and windrowed to depth of six to ten feet, but gradually softening.

Fairport—No ice in harbor; large amount off the harbor which is softening.

Ashtabula—Ice honeycombing fast; no water in sight; a strong south wind would clear it all out.

Jester—Ice in the lake extends beyond vision, windrowed near shore; ferry Shenango No. 1 fast in the ice about one half mile from the piers.

Erie—Harbor clear of ice and but little in the lake. Present indications that navigation can open about the 12th.

Buffalo (10th)—Clear water extends about one mile west of outer breakwater except in South Bay; beyond that icefield remains intact, extending from shore to shore and about 10 inches thick.

## LAKE ONTARIO.

Charlotte—No ice in harbor or lake; navigation open at this port March 29.

Oswego—No ice in harbor or lake. Navigation opened on the 2nd.  
NORMAN B. CONGER,  
Inspector and Marine Agent.

## VISIBLE SUPPLY OF GRAIN.

As compiled for THE MARINE RECORD, by George F. Stone, Secretary Chicago Board of Trade.

CITIES WHERE STORED.	WHEAT. Bushels.	CORN. Bushels.	OATS. Bushels.	RYE. Bushels.	BARLEY Bushels.
Buffalo	261,000		20,000	34,000	265,000
" afloat		205,000			
Chicago	13,342,000	6,557,000	1,875,000	327,000	1,000
" afloat	85,000	4,491,000	549,000		
Detroit	414,000	119,000	34,000	7,000	5,000
Duluth	17,450,000	1,428,000	368,000	432,000	204,000
" afloat	248,000				
Fort William, Ont.	3,515,000				
Milwaukee	245,000	4,000		6,000	2,000
" afloat		597,000	1,114,000	73,000	
Montreal	51,000	15,000	641,000	14,000	33,000
Port Arthur, Ont.	214,000				
Toledo	625,000	2,225,000	355,000	3,000	
Toronto	50,000		4,000		43,000
Grand Total	55,422,000	23,019,000	7,474,000	1,276,000	712,000
Corresponding Date, 1899	30,431,000	31,861,000	11,283,000	1,449,000	2,035,000
Increase	1,208,000	1,461,000		79,000	
Decrease			82,000		89,000

While the stock of grain at lake ports only is here given, the total shows the figures for the entire country except the Pacific Slope.

## WANTS TO KNOW.

BROOKLYN N. Y.

To the Editor of The Marine Record:

Mr. A. R. Smith late of the Seaboard informs me that probably you can give me some information of a vessel built at Cleveland, Ohio, in 1864. The hull only was built at Cleveland. The machinery at Jersey City, N. J. The vessel was named Octavia, built for a Mr. Kennard who was chief engineer at the time for the Atlantic & Great Western R. R. She was the subject of many experiments and trials with her engines; and I understand was under the English flag.

I would like to know who built the hull, and what time she was brought down from the lakes to this coast as during the late 70's or in 1880 she was in New York waters and has given the U. S. Government much trouble from her blockade running the coast of Cuba with expedition to the then insurgents.

If there were any of the results of the experiments made on the vessel that were published at Cleveland please advise me.

If you should not know, probable there may be a channel you could place this in for reply.

Yours respectfully,

J. H. MORISON, 358 Hancock St.

S.F. HODGE &amp; CO.

MARINE ENGINES,  
PROPELLER WHEELS,  
DECK HOISTERS,  
MARINE REPAIRS.  
312 ATWATER STREET,  
DETROIT, MICH.

Chas. E. &amp; W. F. Peck,

58 William Street, New York City.

Royal Insurance Building, Chicago, Ill.

C. T. BOWRING &amp; CO.

5 and 6 Billiter Avenue, E. C.,

London, England.

Insurance

BROWN & CO., - - - 202 Main Street, Buffalo, N. Y.  
A. A. PARKER & BRO., 15 Atwater St., W. Detroit, Mich.  
J. G. KEITH & CO., - 138 Rialto Building, Chicago, Ill.  
LA SALLE & CO., Board of Trade Building, Duluth, Minn.

Are prepared to make rates on all classes of Marine Insurance on the Great Lakes, both CARGOES and HULLS.

The Salvage Association of North America.

INCORPORATED 1899.

AN ASSOCIATION FOR THE PROTECTION OF UNDER-  
WRITERS' INTERESTS AS REGARDS WRECKED  
AND DAMAGED PROPERTY AT SEA.Application for the services of surveyors of this Association  
may be made to either the Chicago or New York offices.Chicago Office,  
ROYAL INSURANCE BLDG.New York Office,  
MUTUAL LIFE INS. CO. BLDG.



## Prominent Fueling Firms==Docks and Lighters.



### Steamboat Fuel at Chicago.

YOUGHIOGHENY and  
LEHIGH COAL CO.

J. T. CONNERY, Manager. ARCHIE J. HITCHCOCK, Dock Supt.  
MAIN OFFICE: 1238-1242 Chicago Stock Exchange Building.  
Long Distance Telephone, Main 5049. 110 LA SALLE STREET.

**FUEL DOCKS:** No. 1, Michigan Slip and Basin. 'Phone 3046, Main.  
No. 2, N. Halstead St. Bridge. 'Phone 773, North.  
**FUEL LIGHTER:** Equipped with 125 2-ton Buckets for  
Fueling anywhere in Harbor

WE PRODUCE OUR YOUGHIOGHENY



### Steamboat Fuel at Cleveland.

THE PITTSBURGH &  
CHICAGO GAS COAL CO.

J. A. DONALDSON, Manager. N. J. BOYLAN, Fuel Manager.

OFFICE: 420-421 PERRY-PAYNE BUILDING.  
TELEPHONE, MAIN 1888.

**FUEL DOCKS:** No. 1, River Bed, through Valley R. R. Bridge. } Telephone,  
No. 2, Main River, Foot of West River Street. } West 190.  
**FUEL LIGHTER:** 300 Tons Capacity; Fuel Anywhere in the Harbor.

COAL, AND GUARANTEE QUALITY.

## PICKANDS, MATHER & Co.

PIG IRON.  
IRON ORE AND COAL.

**FUEL LIGHTERS**

AT BUFFALO,  
ERIE,  
ASHTABULA,  
AND CLEVELAND.

At DETOUR, MICH., A FUEL DOCK equipped with  
Shute capacity of 600 Tons.  
Best Quality PITTSBURGH COAL furnished at any  
time during Day or Night.

WESTERN RESERVE BUILDING, CLEVELAND, O.

## THE W. L. SCOTT COMPANY,

ERIE, PA.

WHOLESALE DEALER IN

Shamokin-Wilkes Barre ANTHRACITE.

Youghiogheny, Mansfield, PITTSBURG.

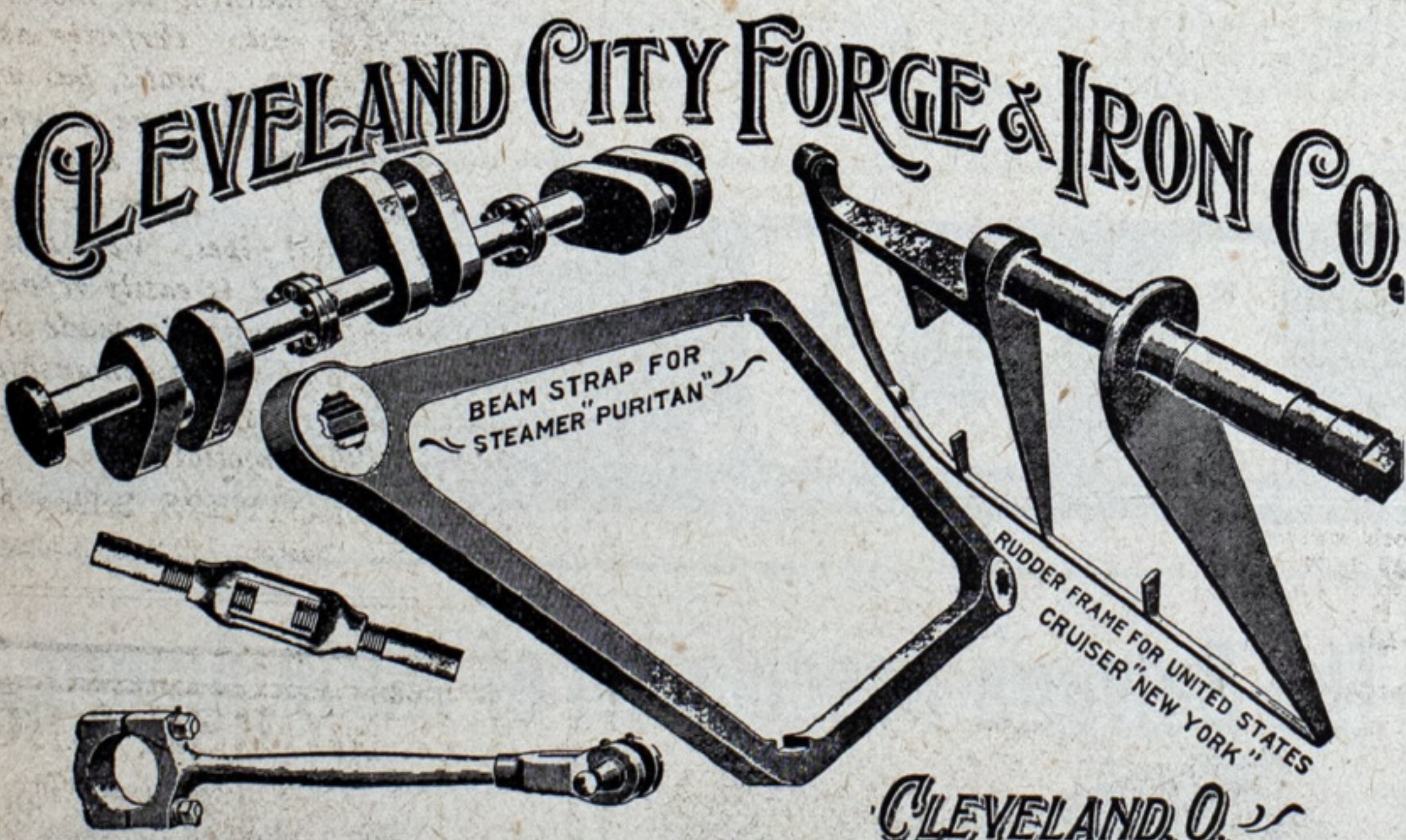
Vessel Fueling a Specialty

by steam lighter or car dump,  
at all hours. Electric light.

# ...Coals

MAIN OFFICE: SCOTT BLOCK. LONG DISTANCE 'PHONE 440.

FUELING OFFICE: CANAL DOCK. LONG DISTANCE 'PHONE 320.



IRON OR STEEL FORGINGS FINISHED COMPLETE, ROUGH MACHINED OR SMOOTH FORGED ONLY, OF ANY WEIGHT,  
COUPLING LINKS AND PINS. PRESSED WROUGHT IRON TURNBUCKLES. CAR IRON SPECIALTIES.

## PATENTS

Procured on Inventions  
and Designs. Labels,  
Prints and Trade Marks  
Registered.

Sixteen Years' Experience.

R. W. BISHOP, - Washington, D. C.

### FOR SALE.

The barge O. J. Hale, length 138 feet, beam 26 feet, hold 12 feet, carrying capacity 23,000 bushels wheat, 700 tons coal, 500,000 feet lumber. The Hale is in Chicago being used to transfer grain. Apply to Hogan's Transfer Line, 290 South Water St., Chicago. 15-16

## M. A. HANNA & Co.

COAL, IRON ORE AND PIG IRON.

### Steamboat Fuel at Ashtabula.

Large Supplies of Best Quality.

Fuel scow with elevators and discharging  
spouts. Storage of 650 tons. Discharges  
150 tons an hour into steamers while  
unloading cargo.

**LIGHTER**

carrying different grades  
at all times.

MINERS AND SHIPPERS.

MAIN OFFICE, Perry-Payne Bldg., Cleveland, O.

## Youghiogheny River Coal Co.

MINER AND SHIPPER OF

# OCEAN MINE COAL.

YOUGHIOGHENY  
GAS AND STEAM

General Office:  
Erie, Pa. Long Distance 'Phone 409.

Shipping Docks:  
Ashtabula, O. Long Distance 'Phone 76.

VESSELS FUELED AT ALL HOURS

ELECTRIC LIGHT.

WITH OCEAN COAL ONLY,  
BY STEAM LIGHTER OR CAR DUMP

## THE IMPROVED ANNULAR STEAM JET

FOR INDUCED DRAFT

POWERFUL. ECONOMICAL.

67 in Use. 50 to 200 lbs. Pressure.

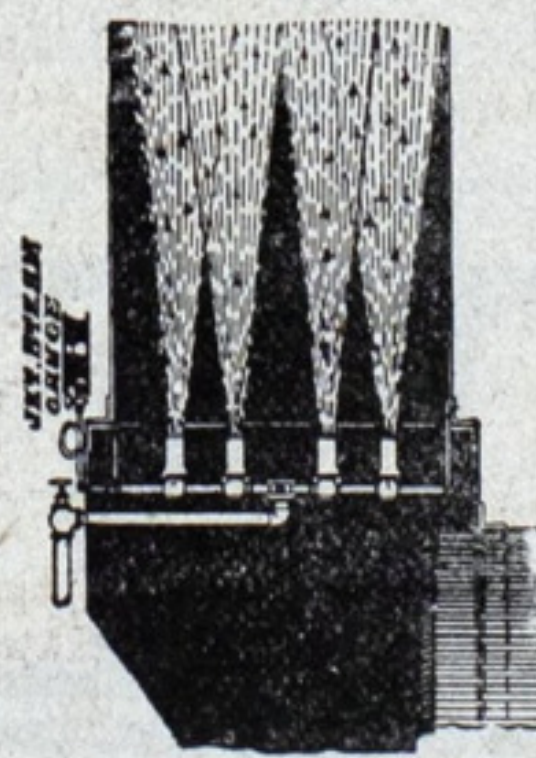
Cut on the right shows section of Jet Castings which  
are attached to Spider in stack as shown in cut on  
the left. 15 to 25% increase in power guaranteed.

All sizes 12" to 8 ft. have been installed.

H. Bloomsburg & Co.,

112 35th Street,

NEWPORT NEWS, VA.



Section of Stack.



Section of Jet.

**PRACTICAL**

**MECHANICS.**

Applied to the requirements  
of the sailor. By Thos. Mc-  
Kenzie. Illustrated; 12 mo.;  
cloth, \$1.50, by mail, prepaid.  
The Marine Record, Western  
Reserve Bldg., Cleveland, O.

Cleveland Telephone,  
Glen. 87 F.

CHAS. R. DITTRICK,

SUBMARINE  
DIVER

Day or Night Calls  
Answered Promptly.

21 Everton Street,  
GLENVILLE, O.

SCOTT'S

# Coast Pilot

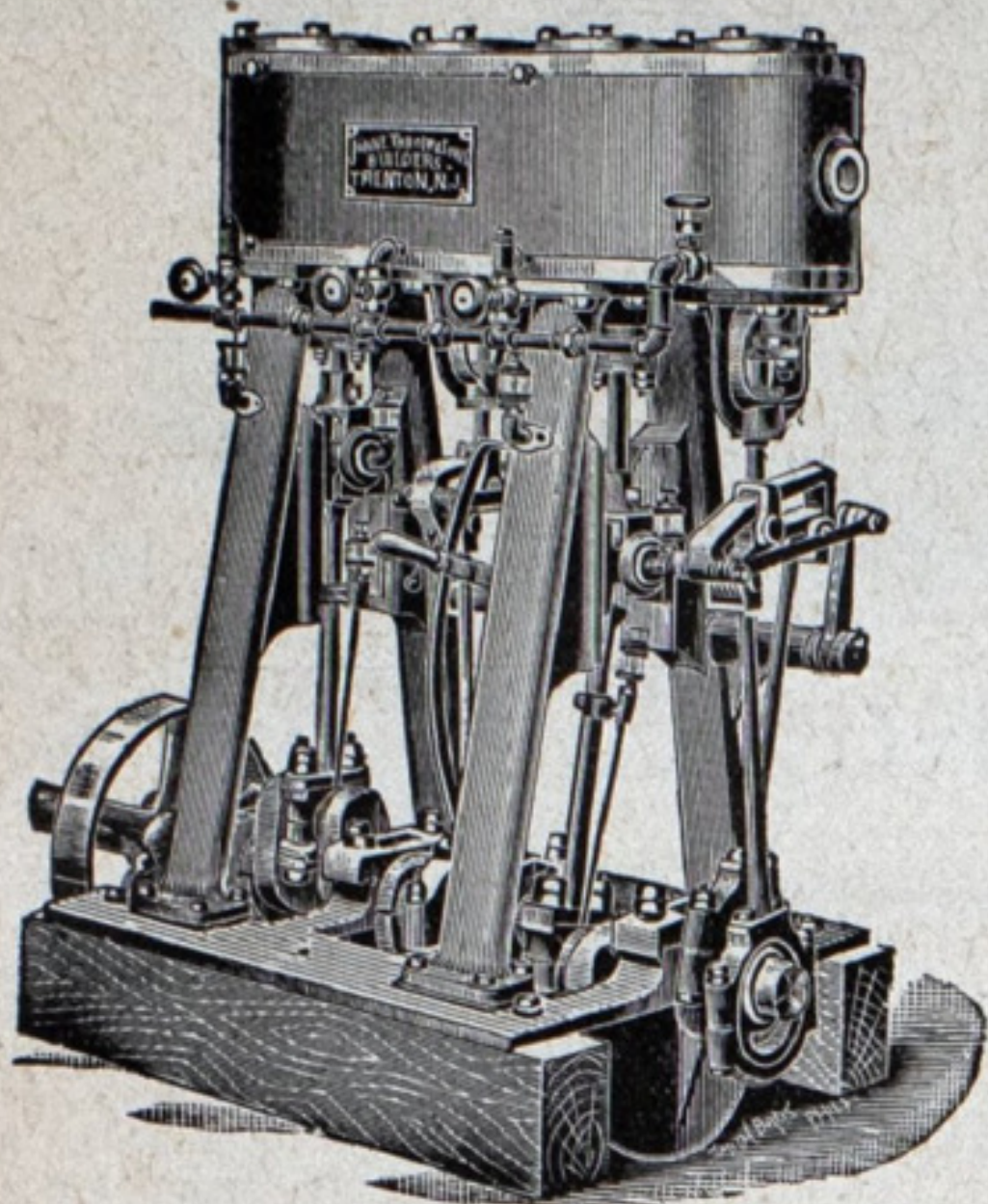
For the Lakes. Price \$1.50.

For Sale by THE MARINE RECORD,

Western Reserve Bldg., Cleveland.



# John E. Thropp & Sons' Co.



BUILDERS OF  
Compound and Triple Expansion  
**ENGINES,**

Boilers, Surface Condensers, Propeller  
Wheels, Etc.

Contracts taken for yachts and tugs  
complete. Send for photographs of En-  
gines and descriptive pamphlet.

Works on Delaware & Raritan Canal Basin.  
**TRENTON, N. J.**

## The KENNEY FLUSHOMETER

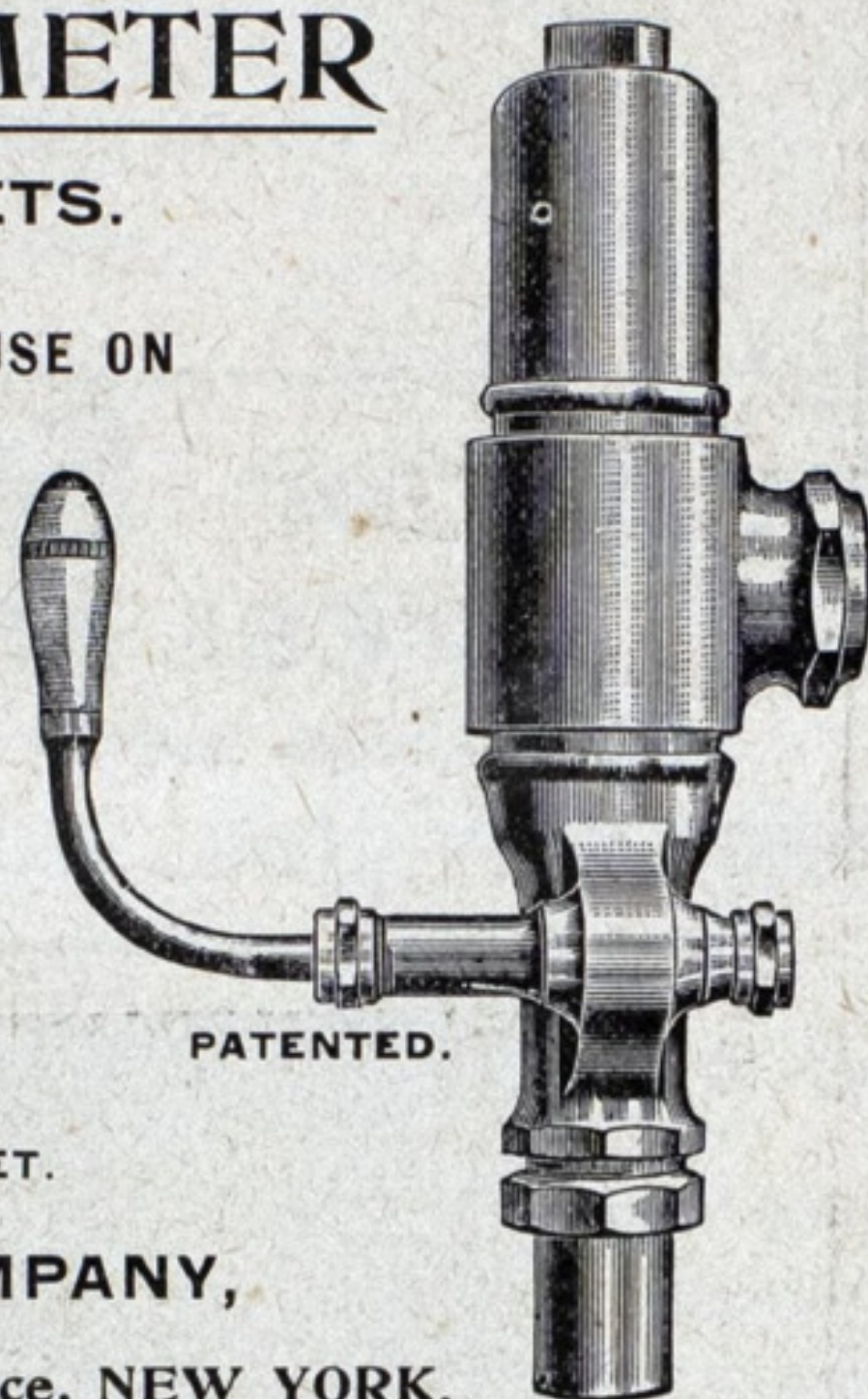
FOR FLUSHING WATER CLOSETS.  
No Cup Leathers or Springs.

THE BEST SYSTEM EVER INVENTED FOR USE ON  
STEAM VESSELS.

Owners and constructors of Steamships, Yachts and  
Steamboats have found it indispensable. Used by  
the U. S. War and Navy Departments. Transports  
Grant, Sheridan, Burnside, Ter-  
ry, Hooker, Thomas, Sedge-  
wick, Meade, McClellan, Sher-  
man, Crook. Also Albany Day  
Line Steamers and others.



Showing application of  
Flushometer.



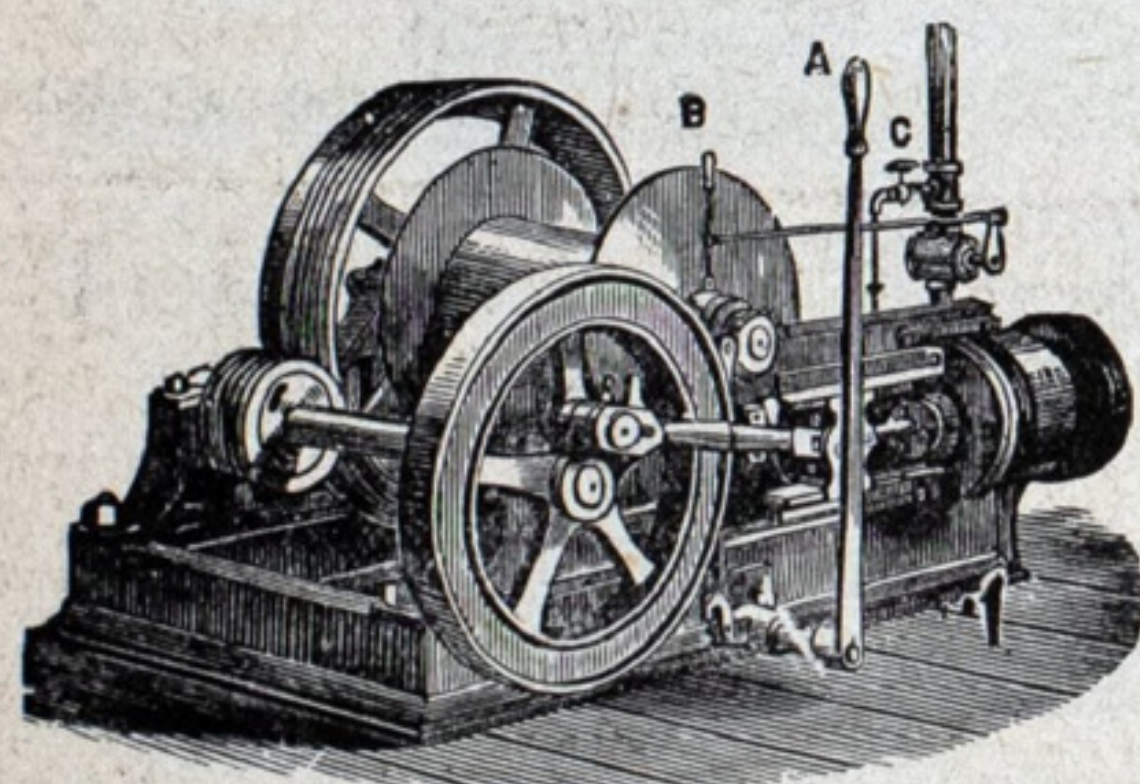
PATENTED.

SEND FOR ILLUSTRATED PAMPHLET.

THE KENNEY COMPANY,  
72-74 Trinity Place, NEW YORK.

## WILLIAMSON BROS.

COR. RICHMOND AND YORK STS.,  
Philadelphia, Pa.



HOISTING and SHIP ENGINES  
STEERING ENGINES.

With either Fractional, Spur or Worm Gear of  
Various Patterns to Suit all Purposes.

### Compasses Adjusted

For deviation, and deviation  
tables supplied. Great facilities  
for doing the work by day or  
night.

**John Maurice.**

Office, 24-26 Market St., CHICAGO.  
Residence, 1213 Albany Avenue.

## Scott's Coast Pilot for the Lakes.

Price, \$1.50.

For Sale by  
THE MARINE RECORD,  
Western Reserve Building, Cleveland.

JOHN DONNELLY, SR., PRES.  
JOHN DONNELLY, JR., VICE PRES.

H. B. FOLGER, TREAS.  
THOS. DONNELLY, SEC'Y.

## THE DONNELLY SALVAGE AND WRECKING CO., Ltd.

KINGSTON, ONT.

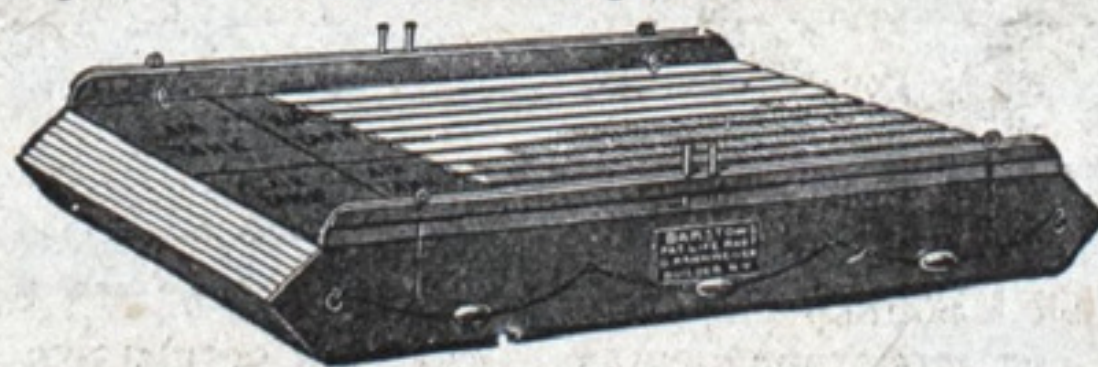
EXPERIENCED DIVERS, TUGS, STEAM PUMPS, ETC.,  
SUPPLIED ON SHORTEST NOTICE.

### NEVERSINK CORK JACKET AND LIFE BELT.

Warranted 24 lb. Buoyancy and full Weight of Cork, as required by U. S. Inspectors. Consolidated Cork  
Life Preservers. Superior to all others. Rings Buoys and Fenders. SAFEST CHEAPEST.  
Approved and adopted by U. S. Board of Supervising Inspectors.  
Also adopted by the principal Ocean, Lake and River Steamer Lines as  
the only Reliable Life Preserver. Vessels and trade supplied. Send for  
Catalogue.  
Awarded four medals by World's Columbian Exposition.



METALLIC  
and  
WOODEN  
LIFE  
BOATS.



Metallic Life Rafts, Marine Drags.

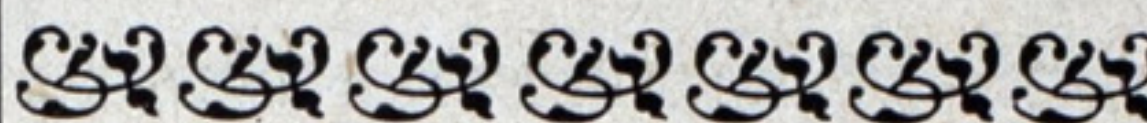
Manufacturer of Woolsey's Patent Life Buoy, which is the lightest,  
cheapest and most compact Life Raft known. Send for illustrated cata-  
logue. Get our prices before buying elsewhere.

D. KAHNWEILER'S SONS, 437 Pearl St., New York City.



## Ship Yard for Sale.

The well-known yard and dry dock at New  
Baltimore, New York, fifteen miles below  
Albany. Has one large marine railway,  
steam saw and planing mill, timber slip,  
mould loft and all necessary facilities for the  
business; plenty of room for sliding off  
either side of dry dock for repairs or build-  
ing new vessels; has a water front of 500  
feet, with docks and buildings in good re-  
pair; well equipped and good facilities for  
getting timber by water or rail. This yard  
has done a prosperous business for many  
years. All in first-class order. Good rea-  
sons for selling. Terms easy. A good  
opportunity for the right party. For full  
particulars and terms address the owner,  
Wm. H. Baldwin, New Baltimore, Greene  
County, N. Y. 47-8



## SHERIFFS MFG. CO.

ESTABLISHED 1854.

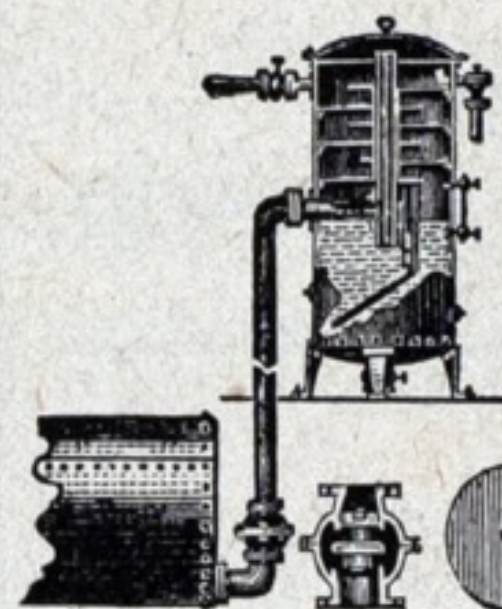


MILWAUKEE, WIS.

## THE CHASE MACHINE COMPANY, ENGINEERS AND MACHINISTS.

MANUFACTURERS, UNDER THE CHASE PATENTS, OF  
Fog Whistle Machines, Hoisting Engines, Steering Engines, Automatic Towing Engines,  
Power and Drop Hammers, and other Machinery. Engineers' Supplies and General Jobbing.

111 ELM STREET. TELEPHONE, MAIN 994. CLEVELAND, O.



## Buffalo Feed Water Heater AND PURIFIER.

Made in all Sizes and to Suit all Conditions.

ROBERT LEARMONTH,  
200 Bouck Ave., BUFFALO, N. Y.

Send for Catalogue.



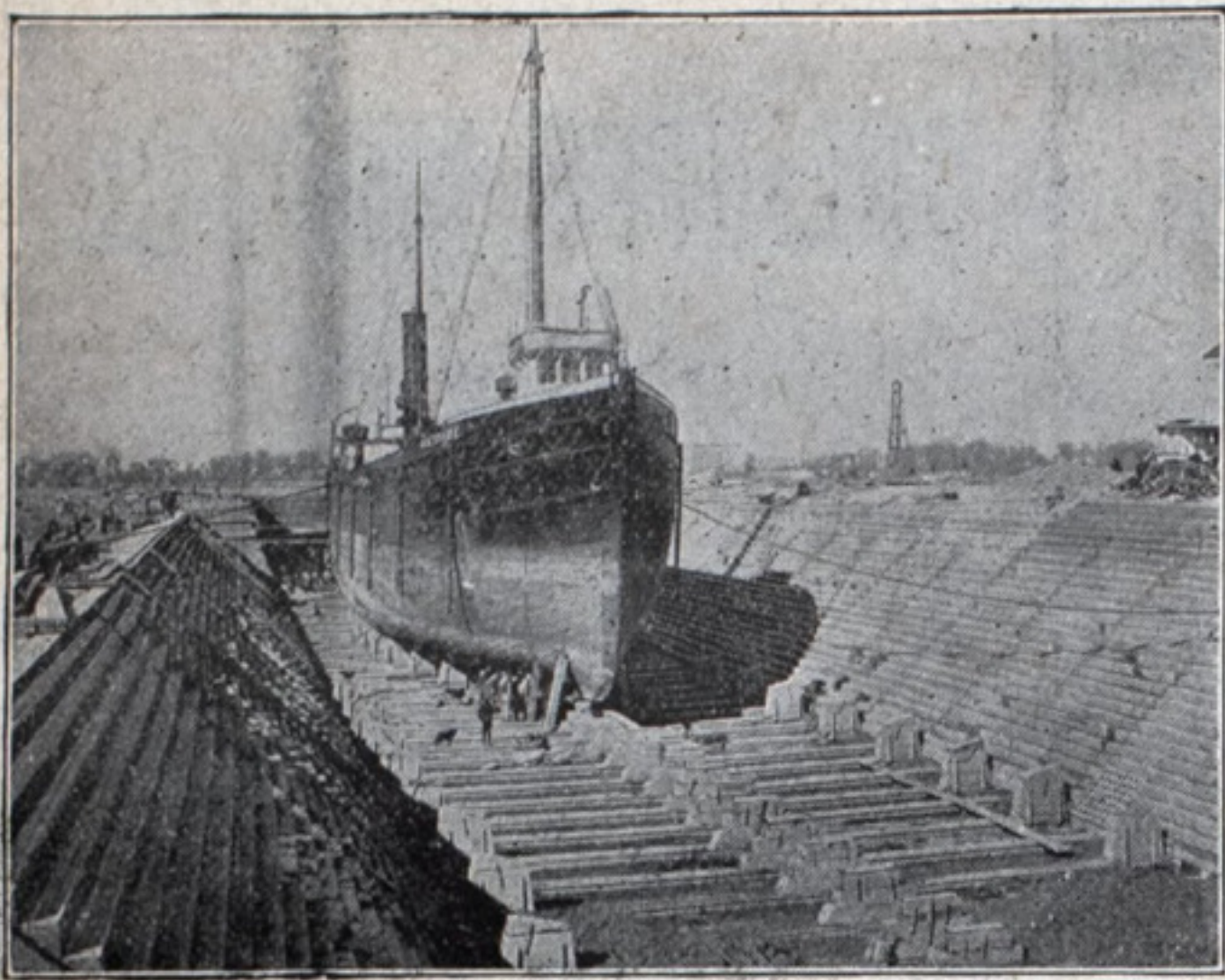
### Sellers' Restarting Injector

A strictly first class  
machine at moderate  
cost. Perfectly auto-  
matic, has wide  
range of capaci-  
ties, and raises  
water promptly  
with hot or cold pipes. Very simple,  
has few parts and is easily repaired.  
All parts interchangeable, made of the  
best bronze, and the workmanship is  
perfect. Send for special catalogue de-  
scriptive of this Injector.

JENKINS BROTHERS, Selling Agts.  
New York, Boston, Phila., Chicago.







# Craig Ship Building Co.

## TOLEDO, OHIO.

New Dry-Dock 450 feet long, 110 feet wide on top, 55 feet wide on bottom, 16 feet water on sill.

Repairs to Metal and Wooden Ships  
a Specialty.

**Metal**  
and **Wooden**  
**Ship Builders.**



## Simpson Dry-Dock Co.

General Contractors and Consulting Engineers,

BUILDERS OF

## Simpson's Patent Dry-Dock,

35 BROADWAY, NEW YORK.

## FOR SALE.

### Steam Barge.

Steam Barge F. E. Spinner, Class A2, carries 1,000 tons of iron ore or 750,000 feet of lumber. Was rebuilt last season, and is in good condition. Will be sold very cheap. Address,

**D. J. RANSOM,**

707 Chamber of Commerce Bldg.,

CHICAGO.

## For Sale.

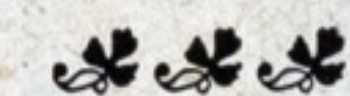
Passenger steamer; 110 feet long, 21 feet beam, 6 feet 6 inches hold, 199 gross tons. Class A1½. Speed about 12 miles. Wood hull. Built by Wheeler. Fore and aft compound engine, 14 x 23 x 18. Steel boiler, allowed 130 pounds steam pressure. Vessel has an upper cabin 50 feet long, 8 feet wide; all hardwood finish. Large bar room; all oak finish; next to large state room of captain. Also, ladies' cabin with 3 closets; one forward, two aft. Three stairways on main deck. Large kitchen and dining room below deck. Two state rooms aft. The pilot house on hurricane deck. Forecastle in peak for firemen and deck hands. Capacity, 525 passengers. Boat is in fine condition, \$700 having been spent on her only last spring for general overhauling. Price \$10,500. Address Kendall Marine Reporting Co., Port Huron, Mich.

## Superior Ship Building Co.

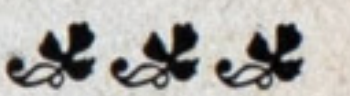
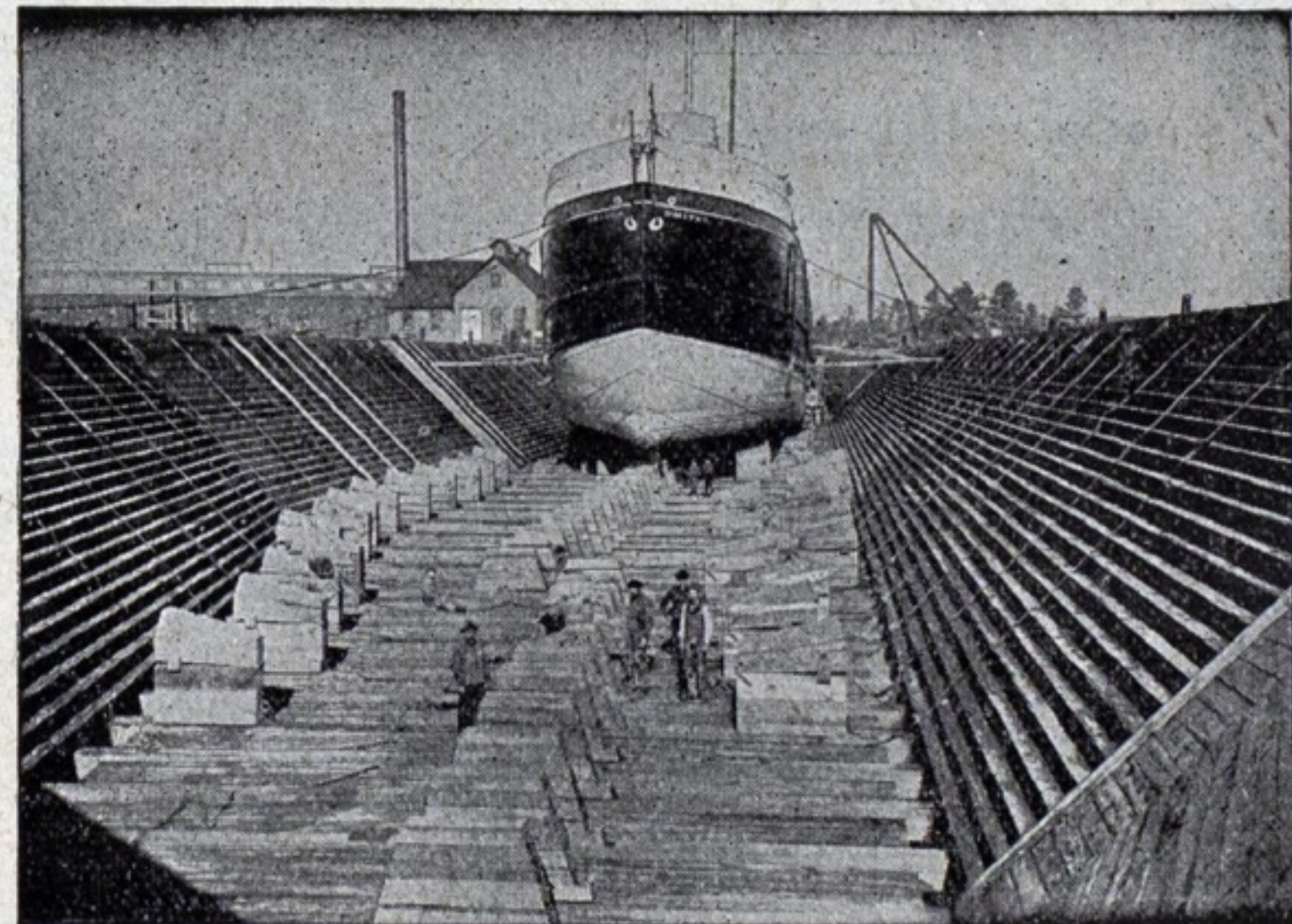
### STEEL AND METAL SHIPS

Of all Classes built on shortest possible notice at our yards at  
**WEST SUPERIOR, WIS., and also at EVERETT, WASH.**

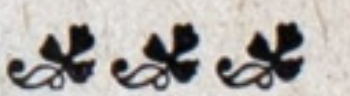
PHOTOGRAPH OF 300-FOOT BOAT IN DOCK.



Plates and  
Material  
always on  
hand to  
repair all  
kinds of  
Metal  
Ships in  
Shortest  
Time.



Best  
Quality of  
Oak in  
Stock  
for  
Repairing  
Wooden  
Vessels  
of all  
Classes.



### SIZE OF DOCK.

Length, Extreme.....	587 feet.	Entrance, Top.....	55 feet 9 in.
Breadth, Top.....	90 " 4 in.	Entrance, Bottom.....	50 "
Breadth, Bottom.....	52 "	Depth over Sills.....	18 "

### LARGEST DRY-DOCK ON THE LAKES.

Prices for Repairs and Docking  
same as at Lower Lake Ports.

**SUPERIOR, WIS.**

A Number of Propeller Wheels in Stock at Dry-Dock.

W. S. JENKS, President.

O. L. JENKS, Vice Pres. and Treas.

A. M. CARPENTER, Sec. and Gen'l Mgr.

# The Jenks Ship Building Co.

Office and Machine Shops  
Fourth Street.

Yards  
Foot of Lincoln Ave.



**Steel and Wood Ship Builders.**  
**Marine Engines and Boilers.**



**Port Huron, Mich.**

—STEAM WINDLASSES CAPSTANS AND STEERING APPARATUS—